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ADDRESS.

ADDRESS OF THE CHAIRMAN OF THE SECTION ON SURGERY AND ANATOMY.

Delivered at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY C. A. WHEATON, M.D.

ST. PAUL, MINN.

Gentlemen of the Surgical Section:—Through the agency of our worthy secretary we have been enabled to provide a program of rare promise for the ensuing three days. Custom has established that the presiding officer of the Section on Surgery shall offer some contribution to its proceedings. Such are usually of a scientific character. I believe, however, that fully as much benefit may accrue from a résumé of the needs and obligations of the workers in this department of our ASSOCIATION. In my humble opinion, at a time when the scientific attainments of the representative members of this ASSOCIATION were of a much more mediocre quality, when they met together in general session and deliberated upon the requirements of the profession, and before the days of the segregation of this ASSOCIATION, before the epoch of specialties, these meetings meant something, and much of good immediate and remote resulted. Memory recalls the time when the elder Warren, the elder Gross, Valentine Mott, Pancoast, Rhea Barton, Brainerd, Hodgen, Bigelow and many others of international fame attended these meetings and shed the radiance of their brilliant intellects upon these National gatherings, and the actively working members of the profession at large, who represent the brain and sinew of the American profession, attended regularly with alacrity and enthusiasm, with insatiable appetites to assimilate all that was good and practical that emanated from these master minds. The older members were strengthened, the younger encouraged by their example to renewed efforts. In those days we learned by attrition how little we knew, and how great the magnitude of the possibilities of the future, when so directed. We have our modern Goliaths; we have Senn and Fenger, Cheever and Warren, McBurney and Bull, Wyeth, White, Keen, Morton and Roswell Park, who have all placed indelibly upon the records of this corporate body an inscription which will endure forever; many of whom too often absent themselves from these meetings, depriving us of the benefit of their superior genius and accomplishments. This unfortunate condition of affairs is the logical result of that segregation which I so much deplore. We are individually and collectively proud of the attainments of the AMERICAN MEDICAL ASSOCIATION. We know that by comparison with similar organizations the world over, we do not suffer. This statement needs no defense and is, I believe, conceded, but that a house divided against itself can not stand, is as true to-day as when spoken centuries ago. We must bring these wanderers back into the fold or our ASSOCIATION will suffer in numbers, influence and proficiency, and the time is not far distant when the AMERICAN MEDICAL ASSOCIATION will be secondary to other organizations, or extinct. I earnestly deprecate this condition of affairs, because it deprives us in our deliberations of the aid of the other members of our profession, whose efforts for the conservation and preservation of life have nothing to do with the knife except in a passive sense, but whose counsel we need, and whose assistance often is absolutely essential in guiding our precious charges to a safe harbor. Where will we land if these leaders in surgery and in medicine, in gynecology and the various other specialties, hold themselves aloof from these gatherings? Sir Edward Jenner gave us vaccination, Morton, Wells and Duncan gave us anesthesia, and Lister a knowledge of surgical cleanliness. We younger men of the present generation felt that we were approaching the surgical millenium with those adjuncts at our command. The surgical license which has resulted has led us into many excesses in surgical procedure. Only a few short years have elapsed since nature's bountiful resources for the protection of human life were revealed, and we are now experiencing the reaction which is an unavoidable consequence of riper experience. Instead of the asexualization of our suffering sisters, we are groping along conservative lines, endeavoring to preserve the organs and functions with which God and nature endowed her. Let us preserve rather than destroy. May we not again invoke the assistance of our absent brethren whose counsel and advice we so much need? The major part of our program is made up of a symposium on the injuries of the cerebro-spinal axis and its bony encasement. I feel confident the subject will be amply covered and fully discussed. It is my earnest hope that in its medico-legal relations, it will receive the attention its importance deserves. The malodorous situation in which the medical witness so often finds himself is due to several causes, chief of which is the motive which inspires his testimony, the legal jugglery of an astute lawyer, and confined by the rulings of the court it compels him to answer "yes" or "no," thus preventing intelligent testimony, baffles justice, humiliates and makes the witness ridiculous in the eyes of both the jury and the public. Our corporations as well as medical witnesses have reason to regret the theories of Erichsen, so long accepted as true, which are now relegated to that professional mausoleum that contains so many entombed medical and surgical fallacies of the past, and by their fuller knowledge derived by scientific research. We now recognize as neurasthenia the Erichsen bugbear of railway spine. We followed the teachings of Erichsen for many years, blindly I think, and it is a question in my mind whether the modern substitute

neurasthenia is not a monster equally desperate and threatening, and which may prove to be another siren that may lead us to commit greater professional inaccuracies and entail greater humiliation. The question of the hour is (in this connection), what can we, as representatives of this body, do to remedy this admitted evil? I, for one, believe that equal justice to both plaintiff and defendant will not obtain until such time as the so-called expert is placed by statute beyond the influence of monetary considerations. I sincerely hope that the many able papers about to be presented before this Section and the resulting discussions will elucidate an intelligent solution of this vexed question of medical ethics.

In conclusion, I do not wish to be understood as disparaging one's individual evolution in a special line, for God knows we are all weak enough in any of them, but with a view of maintaining the integrity of this ASSOCIATION, and particularly the Surgical Section, for it is an important integral part of the whole, and its life and future usefulness depend upon the hearty coöperation of the pioneers who have hewn the way, and made it possible for the younger and less experienced to follow and participate in the formation of a professional fabric which will be a credit to our leaders, add to the laurels of the American profession, and amalgamate and strengthen this organization. I venture to say that there is not a successful specialist in any branch to-day, who is not in a large measure dependent upon his "general medicine" brethren for his following and success, and if my premises are correct he is obligated to attend these gatherings, participate in their labors and reap the benefits justly earned. If he is a man of stout heart, a good campaigner, and has a large income, he may be able to attend all the other association meetings, but to this one he should pledge his special fealty because of its National character, because of its cosmopolitan personality which makes us feel so interdependent, and finally because the character of work done by this Section reflects, in a large degree, the quality of the whole.

ORIGINAL ARTICLES.

SUBPHRENIC ABSCESS AND ITS RELATION TO PYOTHORAX.

Read in the Section on Surgery and Anatomy at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY CARL BECK, M.D.,

PROFESSOR OF SURGERY, NEW YORK SCHOOL OF CLINICAL MEDICINE; SURGEON TO ST. MARK'S HOSPITAL, GERMAN POLIKLINIK, WEST SIDE GERMAN DISPENSARY; CONSULTING SURGEON H. S. G. S. ORPHAN ASYLUM, ETC., NEW YORK.

Among five cases of subphrenic abscess which I observed during the last six years, I could but twice make a correct diagnosis before operation. In two cases I diagnosed pyothorax, the symptoms being those made known by the more or less exhaustive descriptions of modern writers. From the study of the current literature on this subject, as well as from the reports of friends I know, however, that I do not assume an isolated position in this connection, and that pyothorax is very often confounded with subphrenic abscess—not unfrequently even after operation. Such errors impressed me gravely with the important necessity of widening our limited diagnostic knowledge upon this neglected subject. Practically this error, especially if made by a surgeon, is no great misfortune for the patient. It differs but little whether the abscess is located above or below the diaphragm, as the essential part of the treatment in either condition is the same, namely, free opening. But manifestly from a scientific standpoint it is most desirable to know before the operation, whether pyothorax or subphrenic abscess is present.

Increased knowledge would certainly awaken the interest of the profession much more closely upon this Proteus-like disease. When recognized at its earliest possible stage it will give the surgeon most favorable possible chance for success. It will not then happen that patients who might be easily saved by the surgical knife, will be treated for tuberculosis pulmonum until the autopsy reveals that they succumbed to a pus collection in the subphrenic space.

I may even venture so far as to maintain that subphrenic abscess now takes the rank of appendicitis of yore, when an occasional autopsy demonstrated that under extremely rare circumstances perforation of the vermiform appendix, caused by "the obligate grapeseed," may occur, "a cure in such unfortunate cases of course being out of question."

Great was the change that such a short time brought forth! While experienced surgeons had seen one or two such cases during their lives, the leading surgeons of to-day count their cases by the hundreds. Is this due to appendicitis now being a more frequent disease than formerly? Probably not. It is the extensive knowledge gained particularly through the efforts of American surgeons by their autopsies *in vivo*.

As soon as the profession at large will take the same interest in subphrenic abscess as they do now in appendicitis the number of cases, which in the whole present literature amounts to less than two hundred, will rapidly swell to an enormous number and accordingly the prognosis, except in those of malignant origin, will be most favorable.

The history is a most important guide in differentiation. In subphrenic abscess there is generally a history of previous abdominal disturbance. There is no history of cough and expectoration, as in pyothorax. The heart is little, if at all, displaced and there is no excessive action of the thorax or of the intercostal spaces. In the lungs, vesicular breathing is found below the clavicle. Pectoral fremitus is also clearly perceptible. There is a well-marked limit to the region of vesicular breathing, below which the expiration-murmur is replaced by amphoric sounds. Deep inspiration pushes the boundary line of the region of vesicular breathing much farther down, into areas in which formerly no respiratory murmur could be perceived. This would indicate a well-marked separation between the lungs and the abscess cavity, the boundary line of the lungs protruding toward the abscess cavity during deep inspiration.

It is sometimes impossible to distinguish an encysted pyothorax from a subphrenic abscess. The pathognomonic signs of such effusions urged by Leyden were absence of cough and slight expectoration, slight displacement of the heart and rapid change of note if the patient is rapidly turned. But, according to my observations, pleuritic effusion, particularly pyothorax, sometimes occurs without these symptoms.

The motions of the exploratory needle introduced into the abscess, were also regarded as pathognomonic by Fuerbringer. But, bearing in mind that in subphrenic abscess the function of the diaphragm is greatly impaired and that, furthermore, the point of the exploratory needle may be fixed by the diaphragm

as well as by the abscess membrane, neither the presence nor the absence of the motions can be regarded as determining pathognomonic factors.

If the diaphragm, being pushed up high, tightly adheres to the thoracic walls the needle may invade the subphrenic abscess without being fixed by the diaphragm; consequently, even if the diaphragm should still be able to make respiratory movements, the needle would not necessarily be moved by them.

The value of Litten's diaphragm-phenomenon is not yet established. Jendrassik asserts his ability to note a well-marked concave undulating curve parallel to the costal margins in the mammary as well as the axillary line during inspiration. In one of his cases he based the diagnosis of subphrenic abscess upon this phenomenon. The correctness thereof was demonstrated by subsequent operation.

Pfuhl recommended manometry of the internal pressure of the abscess as a reliable guide for differentiation between pyothorax and subphrenic abscess. The canula of a trocar after being introduced into the abscess cavity is brought into connection with a manometer, so that the motions of its mercurial column can be registered. If the canula be in the thoracic cavity the canula would fall during inspiration and rise during expiration, while, if the canula be in the subphrenium, the column would rise during inspiration and fall during expiration. This phenomenon would be due to the dilatation of the pleural cavity and to beveling of the contracting diaphragm. So the conditions of pressure in the subphrenium would be inversely proportionate to the pyothoracic cavity; but regarding the fact, that in all cases except those of very recent date the contractility of the diaphragm is greatly impaired, if not totally annulled, by over-extension as well as by permanent absorption of toxic products, it can hardly be expected that it still possesses power sufficient to increase the pressure in the subphrenic space and to diminish it in a pyothoracic cavity.

Jaffé simply advises controlling the velocity of the pus as it flows through a trocar canula and to observe the difference in the amount of pus discharging during expiration and inspiration. If the amount were smaller during expiration the pus collection would be situated below, if during inspiration, it would be above the diaphragm; but for the same reasons as given for the Pfuhl experiments, these ingenious suggestions are unreliable.

All these points go to show that, aside from the history, there are but few absolutely reliable pathognomonic data for the diagnosis of subphrenic abscess. Practically, however, the main question will always remain as to the presence of an abscess. Whenever suspicion exists the introduction of the exploratory needle is a matter of course. The same aseptic precautions should be observed as in any other operation. The skin of the patient, as well as the hands of the surgeon, should be rendered clean, and the syringe and needle thoroughly sterile. If the first trial be negative, the needle should be introduced several times into different portions, as the pus cavity may either be of small extent or may contain a cheesy accumulation, or finally, may be divided into several small minor cavities by adhesions.

In the first event the cavity may be missed altogether by the exploratory needle, and in the second the needle being introduced into the solid cheesy mass, can draw no pus. After each negative result, therefore, a wire should be pushed through the needle (which must not be of too small a caliber). Thus, some pus which had remained adherent to the inner surface of the needle, will become attached to the wire. Occasionally it will be useful to fill the syringe with sterile water after the operation, and force the water through the needle into a Petri dish. In case cheesy masses are present, small particles are sometimes drawn into the caliber of the needle which can not be seen by the unaided eye; but which, by being mixed with the sterile water, can be recognized under the microscope. In case the microscope does not give sufficient information resort should be had to cultures of the fluid.

T. Brown, in a case of subphrenic abscess, which he took for pyothorax until after operation, found cultures of the bacillus coli communis in the aspirated pus. He very properly emphasizes that when pus from this region yields on culture a mixed or pure growth of bacillus coli communis, there is a strong probability that the point of suppuration is situated below the diaphragm.

The treatment of subphrenic abscess, as alluded to above, is practically the same as that of pyothorax, that is, resection of a piece of rib, the subphrenic abscess generally being within the extent of the ribs. Only resection secures a sufficiently wide opening for thorough evacuation.

As a rule, the eighth, ninth or tenth rib, preferably in the median axillary line, is selected. If the abscess be large, in subphrenic abscess as well as in pyothorax, I have recently made it a rule to resect two or three ribs in order to be able to pack the whole cavity with gauze, which procedure seems to me to be the ideal treatment of any abscess. If the abscess be small, it will not generally be found within the axillary line; then the exploratory needle will always indicate the ultimate route of the incision line. Exceptionally such abscesses may be reached below the costal arches or the xiphoid process.

As to the question whether in the subphrenic abscess the pleuræ adhere or whether they present a cavity filled with serum or pus, it can be stated, that, although of great importance for prognostic purposes, it makes little difference in regard to the surgical proceedings indicated. It is still a widely accepted assumption, that if the pleural sac, when in a normal state, should be opened it would be exposed to the dangers of pneumothorax—not to speak of the erroneous fear of infection from the atmosphere or from escaping pus.

But it must not be lost sight of, that it really happens, as it did to me, that having diagnosed pyothorax the pleural sac is found empty, the abscess then, of course, being subdiaphragmatically located, the danger of pneumothorax is practically *nil*. In subphrenic abscess the diaphragm is then pushed so far up toward the thoracic cavity as to be pressed against the thoracic walls to a considerable extent so as to have its summit brought into permanent contact with the costal pleura. It may even have been so much overstretched as to be entirely paralyzed. The lower part of the thorax itself is also so much expanded that its aspirating power is diminished, and if it really should happen, that after the exposure of the pleural sac pneumothorax occur, and a feeble patient suffer shock, the final incision and evacuation may be deferred until the following day.

[1] Pyothorax and Its Treatment, Medical Record, May 19, 1894.

PERSONAL EXPERIENCE IN SPINAL SURGERY.

Read by title in the Section on Surgery and Anatomy, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY JOHN A. WYETH, M.D.

NEW YORK.

My personal experience with the surgery of the spinal cord embraces the following cases:

Case 1.—G. W. V., male, 31 years, April 19, 1888, while working at the bottom of an elevator shaft, the car descended upon him, striking the back of his head and shoulders, doubling him over forward with great force and producing fracture of the 11th and 12th dorsal and 1st lumbar vertebræ. He immediately became paraplegic, the bladder and rectum being involved in the paralysis. He was carried to his home and put to bed. November 1, more than six months after the injury, I examined him. He had some troublesome bed-sores in the region of the sacrum and hips and had been confined to his bed ever since the accident. I treated him by extension and plaster-of-Paris jacket, which he wore for more than a year. A zone of plaster-of-Paris, in which iron staples were inserted at three different and equidistant points, was placed tightly around the chest above and a similar belt below the line of fracture. Extension bars were then placed in the staples, which by key and ratchet were lengthened, thus forcibly lifting the superincumbent weight from the point of fracture. He improved gradually under the treatment and is now able to walk with the aid of a cane, but has a shambling gait and has not fully recovered the function of the bladder. He is still at times troubled with trophic sores over the sacrum. He is a pensioner on the list of the Western Union Telegraph Company, and does light work about the building in New York city.

It is impossible to estimate accurately the severity of the paralysis which occurred immediately after the accident. This was a case in which a suit for damages was under consideration, and I have noticed that without exception these cases consciously or unconsciously exaggerate their symptoms. However, there was a well-marked projection of the spines of the vertebræ at the seat of injury, and the persistence of the trophic sores and of the paralysis of the bladder even to this date, testify to a very considerable damage to the spinal cord, and it is more than likely that at the time of injury there was an extravasation of blood connected with the fracture, causing practically a complete paraplegia which in part disappeared by absorption of the clot, and by the support given to the part of the body above the point of fracture by the strong extension which was adjusted.

Case 2.—S. S., male, 9 years; admitted to Mt. Sinai Hospital, May 28, 1889. One week before admission he began to be paralyzed from about the level of the navel down. Complete paraplegia ensued. There was a slight dorsal kyphosis which had not been detected by his parents. Reflexes were absent. During suspension a Sayre jacket was applied, which he wore for three and a half months. September 18, I did a supra-pubic cystotomy for the relief of a severe cystitis, caused by frequent catheterization and infection.

As the paraplegia was in no way improved on Dec. 3, 1889, I removed the laminæ of the fourth, fifth and sixth dorsal vertebræ. As the laminæ of the fifth were removed, the dura was seen to bulge for an area about three-quarters of an inch in extent, and on opening at this point, a small round mass of cheesy-looking tubercular material was seen, partly within and partly projecting from the right posterior and lateral aspects of the cord. It was spherical in shape and less than three-quarters of an inch in diameter. It was carefully lifted out with the handle of a scalpel, and the surface of the cavity left was mopped out with a film of cotton wet with weak bichlorid solution. The boy was kept in bed in the recumbent position. February 1, two months after the operation the act of urination again became voluntary. By February 9 there were signs of motion in the legs and feet. By the 20th he walked well, from which time he continued to improve and has entirely recovered. Five years after the operation, when I last saw him, he could run, jump, dance, and do anything with his feet and legs.

Case 3.—G. D., male, 10 years; June 28, 1890, fell a distance of about twenty feet, striking upon the back, and became immediately totally paraplegic without at any time losing consciousness. The rectum and bladder were involved in the paralysis. For six weeks he was treated with a Sayre plaster-of-Paris jacket, but as he improved in no sense, he was brought to me for operation through the courtesy of Drs. Gibney, Watson and McLaughlin. He was in good general condition, but there was absence of motion from the level of the iliac spines down and no sensation from the junction of the middle with the upper thirds of thighs to the toes; there was also constant overflow of urine. There was no well marked kyphosis in this case, but from the line of motor paralysis it was decided that the seat of compression was near the dorso-lumbar junction.

Feb. 26, 1891, I removed the laminæ of the 11th and 12th dorsal and 1st lumbar vertebræ. The dura when exposed and opened was greatly thickened and there was evidently a *chronic pachymeningitis*. The cord was pale in color, much diminished in size and soft to the touch; no direct compression by depressed bone was discoverable; the wound was closed as usual. The patient recovered promptly, but without any improvement, and died of gradual exhaustion in April, 1894, more than three years after the operation. In this case I am of the opinion that the crushing of the bodies was so slight that no deformity occurred. Extra-dural hemorrhage occurred producing compression and with the traumatism a pachymeningitis with permanent degeneration of the cord from pressure and anemia. The same condition resulted in the following case:

Case 4.—S. L., male, 16 years, in good health; fell January, 1894, striking on his back and head upon the floor. After three hours of unconsciousness, he realized that both lower extremities were paralyzed, as to motion and sensation. Rectum and bladder were also paralyzed. For several days after the injury he had chills or rigors, followed by high temperature. He was treated by his physician by careful attention to the bladder and bowels, nutritious diet, and the prevention of bed-sores, for six weeks after the accident, March 8, when he came under my care. He was seen by Dr. Sachs in consultation and it was found that there was complete loss of motion and sensation below the level of the 9th dorsal vertebra behind to near the umbilicus in front. The variations of the temperature in this case present an interesting study.

March 8, 6 A.M., 99.6; 9 P.M., 103.7. March 9, 6 A.M., 104.4; 8 A.M., 102.5; 11 A.M., 104.3; 12 noon, 103.5; 3 P.M., 104.7; 6 P.M., 102.2; 9 P.M., 103.5. From 9 P.M., March 9, it steadily declined and at 6 A.M., March 10, it fell to 97. By 3 P.M., it was 103.5. March 11, 12 and 13 there was little change from 101 to 103; March 14, it fell at 9 A.M. to 99.4; 15 and 16, about 99 to 100; 17, at 9 A.M., 101 to 102, a chill came on and the temperature rose rapidly to 104; 18 and 19, about 100; 20, chill, 103.4; 21, chill, 105; 22, 102 to 104; 23, 100 to 101, operation; 24, 102; 25, 100 to 104; 26, 101 to 105.8; 27, 101 to 105.8; 28, 100 to 104.8; 29, 101.5 to 103.3; 30, 102; 31, 97 to 102.2; April 1, 101 to 105.2; 2, 102 and fell to 100; 3, 101, at 3 P.M. it fell to 98, and by 5 P.M., was 103; 6, chili at 3 A.M., 103.4; 7, 99; 8, 105; 9, 101; 10, 103; 11, 101 to 103.8; 12, 99 to 100; 13, 100 to 101; 14, 6 A.M. chill, 102; by 3 P.M., 99; 15, 103.5, chill; 16, 9 A.M., 99; 6 P.M., 105.2; 17, 6 A.M., 103.3; at noon he died, temperature 102.

On March 23, I removed the laminæ of the ninth, tenth and eleventh and part of the eighth dorsal vertebræ. Between the dura and the bones was a layer of lymph varying from one-eighth to one-fourth of an inch in thickness, which could be lifted off by carefully scraping with the dull scissors. This extended upward and downward as far as the canal was exposed. This membrane was like the rich plastic lymph which covers the intestinal peritoneum in some forms of

appendicitis. The dura was incised for four inches and a free quantity of cerebro-spinal fluid escaped. The cord was not bruised or divided, nor did it appear to have been injured in any way, but it was about one-half the normal size and paler in color. The patient rallied well from the operation. The variations in pulse and temperature which were present for three weeks before the operation persisted to the end. The urine for some weeks before the operation and after this was ammoniacal in odor and contained pus, necessitating irrigation every six to ten hours with warm Thiersch's solution. He gradually and steadily declined from the day of injury to April 17, the date of death. The wound healed without suppuration. The cerebro-spinal fluid escaped from the wound in varying quantity to about six days before death, when the last drainage opening was closed. An autopsy was refused, much to my regret.

These two cases are unusual in my experience. In neither case was there an appreciable injury to the spinal column or cord. At the time of the accident there was evidently an extra-dural hemorrhage, due in all probability to the breaking loose of some of the veins which pass out from the bodies of the vertebræ posteriorly. This hemorrhage exercised a compression upon the cord for a considerable distance, gradually causing atrophy. The presence of the clot produced a pachymeningitis hemorrhagica externa, and the wide varying temperature resulted from this lesion. The cystitis which existed would not have caused such extremes of heat or rapid variations. Moreover the bladder was kept clear by irrigation.

Case 5.—Charles T., 10 years, of Newman, Ga., fell from a tree, a distance of about fifteen feet, in 1892, and suffered instant paraplegia. Four months after the injury he was brought to me. There was complete paralysis of motion and sensation from the level of the umbilicus down, including the rectum and bladder. The bladder did not overflow, but, when it was fairly distended with urine, his father had observed that by tapping with the finger on the abdomen just over the bladder, this organ would contract and empty itself of its contents in practically a normal manner. There was a recognizable projection of the spines above and below the seventh dorsal vertebra.

Removal of the laminæ of the sixth, seventh and eighth dorsal demonstrated a fracture with laceration of the cord which was completely destroyed. No improvement followed the operation. The boy is still living, nearly four years after the operation, and is in good physical condition. His mind is more than ordinarily well developed with remarkable power of memory amounting in this direction to precocity. He still causes evacuation of the bladder by beating a tattoo over this organ.

Case 6.—H. A., male, 21 years, Sept. 1, 1889, was thrown from the cowcatcher of a locomotive on which he was riding, struck upon the rail and bounded from the track. He was picked up unconscious. When consciousness was restored he was paralyzed from his navel down, including the bladder and rectum. There were severe pains in the legs and feet.

April 30, 1890, I removed the laminæ of the last two dorsal and first lumbar vertebræ. In crushing, the bones had impinged upon the cord, which was partly divided, and the undivided part was compressed between the laminæ of the vertebra above and the crushed and displaced body below. Removal of the laminæ relieved compression to a certain extent. When he recovered from the anesthetic, it was noticed that there was immediate slight improvement in motion, especially in the feet. This continued and now, in 1896, six years after the operation, he has fairly good use of the lower extremities; can flex and extend thighs and legs and the anesthesia has disappeared above the knees. He uses one crutch and a cane and with these is able to get about. Within a year he came from his home, a distance of several miles unaccompanied, taking street cars and walking, to present himself at my request at the New York Academy of Medicine.

Case 7.—J. C., 31 years; Mississippi, April, 1893, while in good health, was shot by robbers; six pistol balls, 38-caliber, entered the body at short range and five of them lodged. The first missile passed through the alveolus of the left upper maxilla, wounded the tongue and lodged in the pterygo-maxillary fossa. This bullet I removed. The second ball fractured the right clavicle and was buried in the trapezius muscle and was also removed. The third bullet struck the skull at the occipital protuberance and remained lodged in the muscle at the back of the head and neck. A fourth missile struck a rib and again left the body. A fifth lodged in the deep muscles of the back. At the sixth shot he fell, conscious but paralyzed in the lower half of the body. This ball passed through the skin of the back two inches to the right of the spinous processes, and entered the spinal canal through the right laminæ of the third and fourth dorsal vertebræ. Nov. 20, 1893, over six months after the injury, I saw this patient. There was complete muscular and sensory paralysis below a line starting near the sixth dorsal spine and passing parallel with the ribs to near the ensiform cartilage of the sternum. The bladder and rectum were also paralyzed.

Nov. 22, 1893.—Operation, during which I tracked the bullet to the spinal cord. It entered, cutting a plug out of the right laminæ of the third and fourth dorsal vertebræ. A rim of lead was found adherent to this hole of entrance. The bullet passed forward, cutting the dura on the right side and the right portion of the cord, and passed beyond reach into the body of the vertebra just in front. Several spiculæ of bone were found in the cord, and these had destroyed that portion not divided by the missile. The patient recovered from the operation in no way improved, excepting by the removal of the bullet from the nasopharynx and died about seven months after the operation from exhaustion due to bed-sores, cystitis and interference with the alimentary canal.

Case 8.—S. E. R., private, Troop "C," Third U. S. Cavalry, 20 years; June 19, 1895, while in the act of diving in Lake Champlain, struck violently upon his head and suffered immediate paraplegia. On being taken from the water he was found to be paralyzed as to motion and sensation from the diaphragm down. The paralysis also involved the region of distribution of the ulnar nerves, and the rectum and the bladder.

July 7 he was brought to Fort Columbus, where I saw him in consultation with Major John Van R. Hoff, Surgeon, U. S. A. The injury was located between the seventh cervical and the fourth dorsal, and it was very probable that the bodies of these vertebræ were crushed. Operation was not deemed advisable in this case as there was little doubt that the cord had been destroyed at the time of the injury, and that too long a period had elapsed to justify the hope of relief. The usual trophic bed-sores over the sacrum appeared. The patient was discharged from the service in December, 1895, and is now an inmate of the Soldier's Home in Washington city. His general condition remains unchanged.

Case 9.—L. S., 16 years, personal and family history negative, Oct. 7, 1895, fell one flight of stairs, striking on right sacral region; could not get up but was not unconscious. Admitted to Mt. Sinai Hospital Oct. 9, 1895.

Examination showed a projection over the spine of the seventh cervical vertebra. Head was held stiff and rigid. All voluntary motion of the lower extremities and lower portion of trunk, including bladder and rectum, suspended; was able to move arms, but not without great difficulty; anesthesia from level of the lower portion of the scapulæ down, and down

the inner side of both arms, ulnar distribution. Reflexes suspended. On the day of admission, October 9, the pulse varied from 40 to 52; respiration, 20; temperature normal. October 10, pulse 56 to 75; respiration 18 to 24; temperature, 99 to 104. October 11, pulse, 42 to 80; respiration, 11 to 34; temperature varying from 96.6 to 104 degrees. October 12, pulse 30 to 98; respiration 9 to 16; temperature 91 to 95.2 degrees.

The disturbance in body temperature and in the respiratory and circulatory centers, which is not uncommon in these cases of injury of the spinal cord and membrane, may be observed in the following record of this case for the third day after admission:

Oct. 12.	Temp.	Resp.	Pulse.
1 A.M.	96	12	42
3 A.M.	95.8	12	44
5 A.M.	93	14	46
7 A.M.	92.5	16	98
8 A.M.	90.8	14	45
10 A.M.	92	9	42
12 Noon	91.8	10	36
2 P.M.	91.8	9	30
4 P.M.	91.8	9	30
6 P.M.	92.4	20	35
8 P.M.	93.6	9	36
10 P.M.	94.9	9	38
12 Midnight	95.2	10	43

October 13 the pulse never went above 48 and was as low as 42; respiration, 10 to 21; temperature, 95.4 to 100.8. October 14, pulse, 45 to 55; respiration, 14 to 21; temperature, 100.2 to 101.4. October 15, highest temperature was 101.3, and lowest 99.8; respiration, 13 to 18; pulse, 42 to 50.

There was scarcely any variation from this condition until after October 20, when the temperature rose to 103, respiration, 15 to 20; pulse, 45 to 55. About the same on the 22d and 23d. Again on the 26th the temperature rose to 103, and never got lower than 101; pulse, 50 to 70; respiration, 18 to 20. From this time on the pulse began to grow very rapid and was 70 to 86 on October 31. On November 1, 2 and 3 it was as high as 96 beats to the minute; respiration on these days was from 24 to 28; highest temperature, 104.6

There is nothing further of interest in this case. The patient is still living and has complete paraplegia from the level of the apices of the scapulæ. The usual bed-sores due to trophic disturbance, are present over the sacrum. The fracture was due to contre-coup, the patient striking only on the sacrum.

Case 10.—W. W., 27 years, of Rockaway, N. Y., a laborer in good physical condition. Aug. 3, 1895, while leaning well forward, he was struck over the spines of the tenth, eleventh and twelfth dorsal vertebræ by a stone weighing about twenty pounds, as estimated, which fell from a height of about ten feet; he fell to the ground, having become instantly paralyzed in both lower extremities.

August 11, eight days after the injury, having seen the patient in consultation with Drs. Stephen Pierson and J. H. O'Reilly, of Morristown, N. J., I removed the laminæ of the tenth, eleventh and twelfth dorsal vertebræ. Some fragments of the laminæ had been driven down upon the dura, but had not perforated its membrane, only mashing and bruising the spinal cord, which was not, however, entirely severed; there was no hemorrhage within the dura, which was immediately closed by interrupted sutures of fine sterile catgut. At the time of operation there was complete paralysis of motion in both lower extremities and of the bladder and rectum. The line of anesthesia extended in the arc of a circle about six inches below the umbilicus in front and about the same level posteriorly. The third day after the operation the patient believed there was improvement in motion, and was able to move the foot of the right side, which he could not do before. This improvement, however, was only temporary, for in a letter, dated April 19, 1896, from Dr. F. W. Flagge, who had charge of the patient, he says:

"Walton thinks there has been some improvement in motion, but I doubt it. His feet and ankles swell during the day, but this disappears by morning. His legs jump when touched, the knees jerking together; there are stinging sensations at times in the thighs and legs, and pain shoots down to the toes, beginning at the calf of the leg. He also suffers from inflammation of the bladder. The urine does not overflow now, all the time, as it did at first; sometimes as much as two hours elapse without any coming away, then it comes in a spurt in no way controlled or controllable by the patient. Pulse, 96 to 104; temperature, normal; respiration, 20; skin cool and moist; has lost weight. Large bed-sores formed on the prominences of the sacrum, but those are healing. Severe priapism occurs every day; bowels respond to cathartics in large doses, and he has the usual sensations in the bowels after taking medicine but has no feeling in the rectum."

Case 11.—J. H., 19 years; physical condition excellent. Aug. 12, 1895, while sitting on the railing of a porch, it broke and he fell backward about eight feet, striking directly upon the head, causing violent acute flexion of the chin upon the chest. He remained motionless, and when picked up by the by-standers screamed with pain. He was seen within a few minutes of the accident by Prof. Richard Douglas, of Nashville, who found every evidence of profound shock, rapid pulse, shallow respiration, extreme pallor; he was perfectly conscious and complained of intense pain in the back of the neck, which was greatly increased by the slightest motion. There was complete paralysis of both motion and sensation in the trunk and both lower extremities, the line of anesthesia being one inch above the level of the nipple. The right arm was partially paralyzed, with complete anesthesia in the distribution of the ulnar nerve. Prof. Duncan Eve saw the case in consultation. There was a decided depression over the region of the fifth cervical, and a diagnosis of fracture of the cervical vertebræ, probably the fourth and fifth, with pressure on the laceration of the cord, was made. The patient was placed upon a hard mattress and extension made from the chin and occiput, counter-extension being made by elevating the head of the bed; an ice-bag was applied over the seat of the injury. There was marked elevation of the temperature in a few hours and a great thirst, severe constipation and incontinence of urine.

Through the courtesy of Drs. Douglas and Eve I was called to this case, arriving on the morning of August 16, four days after the injury. Since that date the line of anesthesia had extended to three inches above the level of the nipple, and in the left arm paralysis of motion was appearing. The steadily ascending involvement of the cord already encroached upon the roots of origin ef the phrenic nerves and convinced me that death would result in a very few days by extension of paralysis, and that, however hopeless operative interference might be, it was all that was left to be advised. The condition was clearly explained to the parties in interest and operation was accepted.

With the assistance of Drs. Douglas and Eve and the staff of Dr. Douglas's private hospital in Nashville, to which the patient had been carried, I performed the operation of laminectomy, removing the spines and laminæ of the fourth, fifth and sixth cervical vertebræ. The fifth was found to have been fractured on both sides close to the origin of the lamina from the body of the vertebra, and again fractured near the junction of the two laminæ or bifurcated

spine. One side of the fractured lamina had been driven forcibly upon the substance of the cord, crushing and almost completely dividing it at the level of the body of the fifth cervical, without penetrating the dura. The dura was opened, the cord was found to be pulpified but there was no hemorrhage within the membranes.

The patient bore the operation well; no evidence of shock. The temperature six hours after the operation rose to 105. No improvement followed and no material change took place until the sixth day after the operation. The patient then developed well-marked hypostatic pneumonia and died from respiratory failure on August 24, twelve days after the injury and eight days after the operation.

The temperture, pulse and respiration ran as follows:

	Temperature.	Pulse.	Respiration.
First day. . .	100 to 104.2	120 to 75	28 to 16
Second day . .	103.3 to 102.1	120 to 100	22 to 16
Third day. . .	103 to 99	100 to 80	20 to 13
Fourth day . .	103 to 101	90 to 80	20 to 22
Fifth day[1]. . .	104.3 to 102	114 to 100	22 to 32
Sixth day . . .	104 to 100	104 to 112	19 to 18
Seventh day . .	100 to 104	104 to 92	15 to 24
Eighth day . .	101 to 104	80 to 100	15 to 28
Ninth day . . .	101 to 105	80 to 96	24 to 34
Tenth day. . .	103 to 104	88 to 96	28 to 34
Eleventh day .	103 to 104	88 to 96	24 to 36
Twelfth day .	102 to 105	88 to 90	40 to 30
Thirteenth day	105 to 107.2	86 to 120	27 to 40

Patient died at 2:40 P.M.

It is evident that interference with the function of the phrenic nerve was present in this case from the moment of injury. The filament of the fifth cervical nerve which goes to the phrenic, was involved by the fracture. The ascending degeneration of the cord involved in succession the fourth and third cervical, ultimately producing paralysis of the phrenics, thus impairing respiration and inducing hypostatic congestion of the lungs.

In an analysis of the foregoing cases, the following points seem to me of practical importance.

In Case 2 there was compression of the cord with paraplegia, due to the presence of a tuberculous neoplasm. This paraplegia had persisted from May 28, 1889, to Dec. 3, 1889, a little over six months. The tumor was removed and the functions of the cord were restored. While the character of the compression was sufficient to interfere with the conductive power of motion and sensation, these functions being completely suspended for six months, the ascending and descending degeneration of the cord evidently took place in so slight a degree that the conductivity of the cord was restored after the removal of the compression.

In Cases 3 and 4 there were no external evidences of fracture, and while I am convinced that extra-dural hemorrhage occurred in both of these cases, due to otherwise insignificant injury of the bodies of the vertebræ, thus rupturing some of the veins which pass out of these masses of bone, I am sure that no compression occurred from displaced bone. There was no projection or depression of the spines in either one of these cases, a condition which in all the other cases of fracture pointed very directly to the seat of injury. The appearance of the spinal cord in these two cases was unlike that in any of the others; it was very much reduced in size at the point at which the incision of the dura was made and seemed paler and more anemic that the others. The paraplegia and the ultimate fatal result in both was due either to pachymeningitis, which was the result of the traumatism, or to general concussion and myelitis which followed in the cord and which condition resulted in degeneration of this organ. That the paraplegia was due to the extra-dural hemorrhage and was local in character, I think is evident from the fact that the line of paralysis did not change in these cases from the day of injury to the day of death; in other words, there was no general atrophy of the cord above the seat of injury.

It will be observed that both of these cases were injured by falling directly upon the back, one falling upon the floor and injuring the head at the same time; the other falling upon the ground, striking upon the back.

In Case 1 the patient was struck on the head and the fracture took place at the dorso-lumbar junction as the man was doubled forward upon himself.

Case 8 was injured while diving, striking upon his head and producing a crushing of the upper two dorsal vertebræ.

Case 9 fell from a height, striking on his sacrum and buttocks, fracture occurring at the cervico-dorsal junction.

Case 11 struck upon the back of the head, fracturing the fifth cervical, no doubt crushing the body and fracturing both laminæ at their junction with the body.

Cases 5 and 6 were in all probability lesions caused by *contre-coup*, but upon this point I could not obtain a positive history.

Only two cases were due to *direct* violence; one of these, the remarkable case of gunshot wound of the cord; the other due to the impact of a heavy stone upon the spinous processes of the injured region.

As to the results of the cases given, three were not operated upon. One of these was greatly improved by extension and counter-extension, the fracture occurring in the dorso-lumbar region where this plan of treatment can be satisfactorily carried out. The same treatment was undertaken in the other two cases, but with no improvement in their condition. Both are living but their conditions are decidedly hopeless.

Of the eight cases upon which I operated, one was entirely cured (case of tuberculous tumor); another, the young man who was injured by being thrown in front of a locomotive, although the operation was done eight months after the injury, was in my opinion greatly benefited thereby, and is still living and able to get about with a cane and crutch. The other cases were in no way benefited by operation.

Of these eight operative cases, one died six days after operation, and his death may have been hastened somewhat by the interference, although it is clear that destruction of the spinal cord at the level of the fifth cervical vertebra could not long have been survived without interference, by reason of extension of the ascending degeneration to the branches of the phrenic nerve.

In none of the other cases could a fatal result be charged in any way to the operation. Indeed, in my opinion, when properly performed, the operation involves so slight a risk to life that it should encourage the surgeon to advise this method of exploration in all cases in which the symptoms point to compression of the cord. I would be deterred from advising opera-

[1] Day of operation.

tion in any case by nothing except the great depression of pulse, respiration or temperature which is occasionally met with. In one of my cases, the temperature was down as low as 91 and did not go above 96 in twenty-four hours.

The method of operating I employed in each case is as follows: With the patient in the prone position, reclining somewhat upon one side in order to interfere as little as possible with the movements of respiration, an incision, the center of which is the seat of lesion, seven or eight inches in length is made directly over the spines. Retraction should be made by strong hooks, which controls hemorrhage in good measure; the attachments of the muscles should be cut or scraped from the bones in order to avoid wounding any vessels. In this way the laminæ are finally exposed and with a small rongeur are divided and removed one after another until the dura is sufficiently exposed. If there is considerable oozing, this should be stopped by packing with sterile gauze, taking care not to make pressure on the exposed dura. After the wound is entirely dry, the dura is opened by a sharp-pointed knife, cutting down carefully in the middle line until there is an escape of a drop or more of clear cerebro-spinal fluid. Through this primary puncture a dull-pointed grooved director should be inserted, and the dura divided exactly in the middle line as far as necessary. When the fluid escapes the edges of the dura can be held apart by mouse-tooth forceps and the cord inspected. If the latter is touched with the finger it should be very lightly and carefully done; a light, dull-pointed probe should be passed up and down from the point of opening to determine whether or not the compression of the cord exists above or below. In one instance, following this precaution, I found that as the probe was arrested by the projecting bone, I was a inch below the real point of compression. The dura should then be closed by fine interrupted catgut sutures about three-sixteenths of an inch apart and the muscles of the two sides stitched together with strong catgut sutures. Silkworm gut sutures are used for the skin. It is always wise to leave a twist of catgut projecting from the level of the dura and out at the inferior angle of the wound, as some oozing is apt to occur which, if not allowed to escape, would exercise compression upon the cord. Most careful asepsis should be practiced. The patient should remain upon the back for the first week or ten days after the operation. I usually dress the wound about the fourth or fifth day. Patients seem to suffer no material inconvenience from removal of the laminæ of two or three vertebræ.

ON THE EXPLORATION OF THE BRAIN WITH A NEEDLE AND SYRINGE THROUGH CAPILLARY HOLES DRILLED THROUGH THE SKULL.

Read in the Section on Surgery and Anatomy, at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

BY EDMOND SOUCHON, M.D.

PROFESSOR OF ANATOMY AND CLINICAL SURGERY, TULANE UNIVERSITY, NEW ORLEANS, LA.

It is several years ago, in May, 1889, that I first drew the attention of the profession to the value and importance of exploring the brain with a needle through small apertures made in the skull. This method was proposed to take the place of trephining, *i.e.* removing a ring or bone, before exploring the subdural spaces and the brain. The simplicity of the procedure and its safety recommended it as an easy means within the reach of a greater number than the other more serious and comparatively complicated operation of the trepan. By its ready employment it was expected that many lesions, specially abscesses, cysts and hard tumors, could be earlier diagnosed and located with certainty after exploring by this means the region suspected from the distant symptoms.

To determine first the possible dangers from hemorrhage I conducted a number of experiments on dogs. The manner of proceeding was in thorough accord with the Listerian principles, and the spots for perforation selected with as much care as if an ordinary trepanation was to be performed. The instrument employed was an ordinary stem watchmaker's drill, to which I added an adjustable guard to prevent unlimited penetration of the drill into the brain substance after the penetration of the bones. An important factor the is *size of the needle;* it should be at least twice as large as that of an ordinary hypodermic, lest the fluid, if thick, would not be sucked in by the syringe, thus leading to erroneous conclusions. Two dogs were thus treated, twice on each side, away from the middle meningeal artery. The needle penetrated two and one-half inches. After thorough recovery the same two animals were again subjected to the same process exactly. At no time did they show any signs of having thus had their brains explored repeatedly. One dog was killed while under the effects of the anesthetic and the parts exposed and examined thoroughly. All that could be seen was an ecchymotic spot no larger than a flattened pea under the pia mater, no more than could have happened if a crown of bone had been removed before using the exploring needle. Thus it was proved as far as these experiments went that it was possible and practical to explore the brain in several spots at the same sitting without being limited to the space and lines of a ring of trepan. It is only in cases of tumors of the same consistency as the brain, that is soft but not fluid, that the explorations would be of no avail and let matters remain in doubt, but this also would be the case if the trepan had been used instead of a drill. Even then, in some cases the microscopic examination of the particles expelled from the needle might give reliable information. May we not venture to predict that some day this process will be used to aspirate the extravasation of blood in the tissue of the brain or its ventricles in cases of cerebral hemorrhage, spontaneous or traumatic, as we do for a liquid hematoma of the soft parts.

It is also in the early detection of the mastoid and peri-auricular abscesses from middle and internal otitis that the method will afford most important results, whether positive or negative, the latter being then just as important and practical as the former.

Dr. R. Matas, who kindly assisted me in my experiments on the dogs, communicates the following case, which occurred in 1889.

"Patient had suffered for years with a chronic purulent discharge from the left ear and he suspected an abscess of the temporo-sphenoidal lobe compressing the inferior or middle pon-Rolandic region. He says he was so impressed with the simplicity and certainty of the capillary drill punctures that he decided to explore the patient's brain with the hope that if pus

was found, its subsequent evacuation by a large trephine opening might bring relief. It was done, at Barter's point of election for temporo-sphenoidal abscess one and one-half inch behind the center of the external auditory meatus and one and one-half inch above. Through the direct tract in the soft parts, the point of a spiral watchmaker's drill was introduced and a small hole was quickly made which involved the whole thickness of the skull almost through the vitreous plate. The resistance of the vitreous was easily appreciated so that due caution could be observed not to punch the whole drill with the point suddenly into the brain. The perforation of the skull was easily completed with the point of a No. 1 aspirator needle attached to an ordinary hypodermic syringe. The exploring needle (duly sterilized) was then introduced fully two inches into the brain and slowly withdrawn. Unfortunately no pus could be aspirated nothwithstanding a perfect vacuum. Another drill hole, one inch in front of the last point and on the same line was made and the needle introduced with the same negative results. No effect upon the patient's condition was noticed when the needle penetrated the brain. Not the slightest variation in the pulse. Nothing to indicate that the two explorations had in any manner complicated the patient's condition. In view of these two negative results and the otherwise hopeless state of the patient we decided to desist from further explorative procedures. The patient succumbed in full coma the same night. No autopsy was performed, but I am satisfied from the failure of the carefully made punctures that there was no abscess and that the pressure symptoms and septic condition were accounted for by meningeal exudation and septic sinus phlebitis."

My growing interest in this subject induced me to undertake extensive bibliographic researches. In this I was most kindly assisted by Dr. W. W. Keen and by Dr. Hermann Gessner.

Apprehensions have been expressed as to the danger of hemorrhage. They are, a priori, not greater than when a crown has been removed and the needle run through the dura or pia mater. The fears are, however, more theoretical than practical, as demonstrated by the experiments related above and also by the experiments of Dr. Spitzka (Proceedings Amer. Neurological Assn., 1887). It has been thoroughly demonstrated that almost all the parts of the brain can be punctured with an exploring needle with impunity under thorough asepsis. This has been done time and again on the lower animals after using the trepan.

On the living human subject, Dr. Spitzka reports the case of a boy where, after trephining, the brain had been punctured in two places.

This case deserves more than passing notice, particularly because it is almost unique in the human subject and also in justice to the pains taken by the conscientious and thorough experimenter to follow it to its extreme limit.

The patient, a boy, aged 11, was thrown from a horse, and sometime afterward his symptoms became aggravated. Trephining at the point of injury was performed and a hypodermic needle introduced three times in various directions. No fluid was obtained. He died comatose three months after operation.

On searching for an indication of the punctures made none could be discovered on the surface of the brain nor in the pia, arachnoid and dura. On carefully making three sections of the region involved, three dark bluish lines were found extending vertically to the surface. One, the longest, measuring a centimeter in length, nearly reached the surface, and in the hardened specimen a slight pucker was found to mark the point which it would have reached if continued. The three showed the same composition, coagulated blood; at their deeper ends there was a rusty colored continuation, which microscopic examination showed to be due to the presence of a large number of blood corpuscles in the otherwise normal cerebral tissue. There was no spindle cell nor indication of any inflammatory disturbances whatever in the cortical or medullary tissues, nor did any of the nerve cells, as far as they could be identified, exhibit structural changes. The blood vessels were normal. I could discover no certain indications that any vessel had been wounded. Undoubtedly the three delicate tubular semi-clots represented the entire extent of the permanent damage inflicted by the probe punctures. So far as this case goes the harmlessness of exploring punctures is proven.

The conclusions drawn by the reading of Dr. Spitzka's paper is that practically hypodermic needles may be inserted with impunity, but he thinks that needles should never be introduced in the internal capsules, the contiguous ganglia or the lateral ventricles merely for exploratory purposes, unaided by positive clinical indications of the location of the disease. Surely no exploration should be attempted if no proper symptoms call for it.

In August, 1893, Meinhard Schmidt published in the *Archiv. für Klinische Chirurgie* an article entitled "On Perforations of the Cranium with Subsequent Diagnostic Puncture (explorations) of the Brain," and he mentions a case where this process was used; it gave a negative result, but this was most valuable in itself. The patient succumbed three days after the puncturing, to what proved a fissured fracture of the skull. The needle puncture site in the right temporal lobe, was marked by a fine patched star-shaped ecchymosis in the pia mater, scarcely the size of a lentil; the site of the puncture could not be found in the cortex, so that the direction itself could not be determined. Numerous incisions through the substance of the brain, made in various directions, gave no view of the puncture. There was neither any trace of the tract of the puncture nor any hemorrhage of whatever size to indicate its site. He considers it doubtful that any serious hemorrhage would take place even if a branch of the middle meningeal was traversed, as he thinks that upon the withdrawal of the needle the contraction of the coats will close the opening. The same applies to the middle cerebral. Of course, the tract of the longitudinal and transverse sinuses must be avoided unless they be inflamed, when they must be explored.

Maas, in 1869, mentioned the idea. (*Zur Casuistik und Therapie der Gehirnabscesse nach eigenen Erfahrungen, Berliner Klinische Wochenschrift, 1869.*) He was at that time an assistant in the Breslau Clinic. However, nothing shows that he has applied it either on the lower animals or on man. He calls the process *Akidopeirastic*, meaning the proof by the needle.

Middeldorf, in 1856 (*Gunsburg's Zeitschrift für Klinische Medicin*), had anticipated Maas and seems to have used the drill on the mastoid process, on the frontal sinus, on encephalocele and encephalohema-

toma, but he does not mention the skull over the brain. He recommends a spoon-shaped drill point which cuts out the inner table of the skull and at the same time does not project through, so that it is less dangerous to the dura mater.

DISCUSSION.

DR. THOMAS H. MANLEY, of New York, said: The author referred to the question of the utility of his method of examining the brain by small punctures, but I question the propriety of using that or any other means of exploration in cases of hemorrhage into the brain substance or between the walls of the skull and the meninges. My experience in treating fractures of the skull has been large and I have some pretty pronounced views as a result of my own experience as to what I think is the safest way of dealing with hemorrhage. The teachings of modern surgery would imply that the rational method is to at once explore for the bleeding point and displace the clot, but I feel sure in those cases in which there is any depression of warmth, it is calculated to do more harm than good. Hemorrhage into the brain substance in certain situations is entirely beyond our reach, assuming that the clot could be safely dislodged. If there be an effusion of blood into the brain, there is no reason why that blood should not undergo rapid absorption the same as elsewhere, in fact more so on account of the high vascularity. It has been my misfortune in trephining and undertaking to displace large blood clots to open the vessels which nature had plugged with clots and my patients bled to death. Others may have had the same experience. A month ago I was called to see the wife of a physician who had slipped on the icy pavements and fallen, striking on the back of her head. She could not stand for a few moments, but after awhile she was able to make her way home. During the day she became conscious of a severe pain in her head, the sight became dimmed and somnolence developed. On the second day after the injury, I was called to see her, when she presented every evidence of fracture. She had complete paralysis of the muscles of the left eye, as well as the entire loss of vision. The right eye was also paralyzed, but the sight was unaffected. There was a slight elevation of temperature, about 100, but no paralysis. The case pointed pretty positively to a hemorrhage, probably into the posterior occipital lobe of the cerebrum, and the question arose what was the best to be done. There was no hemorrhage from the ears or nostrils, but she was developing meningitis. The only thing that pointed to fracture was large ecchymosis into the conjunctivæ and both eyes were distended. A consultation was held with one of the most distinguished neurologists in New York and also with a surgeon who was a relative of the patient, and it being decided that there was a hemorrhage, trephining was suggested. I took a bold stand against that procedure, and I felt so certain my course was right that I said I must withdraw from the case if the trephining was performed, because I believed it would kill the woman. The husband supported me, the skull was not trephined and the woman made a good recovery. As far as hemorrhages into the brain are concerned, I wish others would give us their views. Is it their opinion that we should or should not trephine for hemorrhage? This might be well in suppurated disease of the mastoid and purulent processes stretching along the anterior lateral walls. It strikes me if we undertake to employ this or any other means we should be ready at the same time to go on and do the operation, and the anesthetizing of the patient should be just as complete as for any other operation.

DR. NICHOLAS SENN of Chicago, said: The paper is a very valuable one and is calculated to add dignity to the Session. I somewhat disagree with the author but some of the ideas he has advanced will lead to very valuable results. From a practical standpoint, I must confess that I have more often been disappointed than anything else in using the needle. I have never gotten any diagnostic information equal to inspecting and palpating the surface of the brain because diagnostic palpation can be relied upon. If the needle yield a negative result, you will very largely draw an erroneous conclusion. We can not estimate the extent of its diagnostic resources by the size of the cranial cavity, and I think that a small perforation is attended by more danger than by opening the skull; in fact, it is the experience of every surgeon that it is the small wounds that are so prone to trouble us, for obvious reasons. I combine puncture of the brain with a temporary resection of the skull at the point I believe to be the seat of the disease and this temporary resection yields very valuable diagnostic information. In the first place, after having laid the brain free, one can form some idea whether it is necessary to puncture or not. If I am still uncertain, I follow with palpation. These methods will show the presence or absence of an intra-cranial tension. If there is no tension there is no need of a needle puncture, but if there is tension, the needle should be used. It is here where the needle so often yields erroneous information. When I puncture the brain, I always combine with it the modern aspiration. By puncturing the brain carefully in the direction where we have reason to believe an abscess exists, the sensation imparted to the finger is of great value in determining between a solid tumor and a cyst. Increased resistance of the needle will help you. The needle can only give positive results in the case of fluids, pathologic productions such as blood, serum, cysts or abscesses. Again, the needle can not be relied upon as an absolute diagnostic test even in the presence of an abscess or a cyst, but the surgeon may utilize it as a guide to reaching the abscess. I feel therefore that I must look upon the needle only as a diagnostic resource, as an aid in making diagnostic tests. One day after making a temporary resection of the skull, finding no possible indication of an intra cranial lesion and wishing to explore the brain in different directions in a systematic manner, I made a puncture and was horrified by a sudden movement of the head of the patient. I knew that this sudden movement had resulted in extensive damage to the brain, and I do not wish to repeat a similar experience. You are all aware of the fact that an ordinary exploratory incision can not be relied upon. Another thing, the needle is difficult to sterilize and frequently the apparatus will not work at the proper moment. I wish to substitute for the needle the method of suction by using a bulb that I can empty. This I connect to a rubber tube and attach the trocar, which is movable to the canula and the exhaustive apparatus. The vacuum can always be relied upon in making the suction and I have been very much pleased with this method.

DR. ALEX. HUGH FERGUSON of Chicago said Dr. Souchon's paper is a good one, but from my own experience, I think it is very unreliable and I would not care to rely upon the needle. The same is true of drainage. I remember a case of abscess which had a typical history of middle ear disease, etc., and on exploring with the needle, I could find no abscess but the surface of the brain manifested the signs of inflammation. In certain cases the needle may be very useful, but sometimes the coagulation of the blood is very rapid so that it would not be as serviceable as one might expect. If there is an injury of the brain substance and a good deal of hemorrhage we substitute something else, as for example gauze packing.

DR. SOUCHON, in closing the discussion, said: I intend this needle to be used merely as a preliminary step to be followed immediately by one of the proper methods of treatment. As regards the exploration that has to be done, there are several reasons why the needle is useful. The size of the needle is a very important matter. Sometimes the method will fail upon the first trial because the apparatus does not work properly, or the needle may be rusty or too small. I have seen my assistant exploring with a needle that was too small and no good resulted. I can not emphasize other good points at this time.

EXPLORATION AND TREATMENT OF FISSURES FROM SKULL FRACTURES.

Read in the Section on Surgery and Anatomy at the Forty seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY H. H. A. BEACH, M.D.

BOSTON, MASS.

The modern treatment of fractures of the skull, which includes the uncovering of all suspicious areas suggesting depression or the projection of bony spiculæ toward the dura, the removal of fragments and foreign matter of every description, the arrest of hemorrhage, adequate provision for drainage, faithful observance of asepsis both in operating and dressing, with such attention to the general condition of a patient as may be requisite, is, in a word, the impression that Lister and his teaching have made upon the surgical work of pre-antiseptic days.

The results obtained before that time through the faithful and painstaking application of surgical principles, of which cleanliness as then understood was the corner-stone, are scarcely less astonishing than those of to-day, if just consideration is given the work prosecuted in ignorance of the existence of bacteria and their appalling ravages.

The confidence and boldness with which the surgeon may now undertake explorations involving the gravest consequences, have really been the outcome of protection afforded from the toxic effects of septic disease by the gradual development of aseptic principles. Wonderful advances in saving lives and the brilliant results of daring operating have made the field of cerebral surgery a most attractive one during the past decade. With all the advantages, however, afforded by aseptic precautions, the mortality of skull fractures involving the base remains high. This mortality has an association with such elevation of temperature as to point unmistakably in the direction of septic infection as an explanation, and leads to the doubt of a perfect asepsis in all cases. Without question a certain share of the mortality is inevitable from severity of injury as well as from incidental complications that are independent of sepsis. Crushing injuries of the head with extensive laceration and destruction of tissue, together with abundant hemorrhage, will surely determine a proportion of more or less early and irremediably fatal results.

Of the patients who survive the immediate effects of injury, a number are subject to a comparatively slight rise of temperature for a short time, associated with varying symptoms of concussion, and ultimately recover. The remainder improve for an uncertain period from several days to a week or more, then gradually develop a temperature that, with occasional and irregular fluctuation, rises as the patient gradually sinks to his death. It is possible that of this last group some die from chronic inflammation of brain tissues following their contusion or laceration and the interference with its nutrition through the pressure effects of masses of clot, added to the degenerative changes characteristic of those processes. Progressively high temperatures common to fatal cases, however (though every care prescribed by aseptic rules be followed), and their similarity in other respects to those treated without aseptic precautions make it doubtful, to say the least, if sepsis has been completely eliminated from them.

The reduction of this mortality is a problem that now confronts the surgeon, and as an entering wedge toward its solution, the importance of a series of observations that will establish beyond doubt the relation of sepsis to the fatal results can not be overestimated. Much may be accomplished by the systematic and accurate observation of all cases of fractured skull where there is any open surface requiring dressing or where any discharge exists, by making bacteriologic cultures, at intervals during life and at the autopsy; briefly, freedom from sepsis should be definitely and unmistakably proved in any fatal case by the unassailable evidence supplied by carefully made bacteriologic tests, to clear it from the suspicion of putrefactive infection. With the belief that such inspections will show cases heretofore unsuspected to be septic, and therefore requiring a more rigid application of aseptic principles, I venture to add that a logical deduction from the same combination of symptoms with wounds in other parts of the body would direct the attention of the surgeon to the vital importance of finding, if possible, the source of infection and applying the proper remedy.

In making this search, one is impressed with the invariable freedom with which the immediate seat of injury is now inspected, cleaned and dressed, relieving in a measure the region of direct violence from the suspicion of contamination.

In considering the more remote sources, the common association of bloody or serous discharges from the ear or nasal passages, continuing for days after the injury, and in some fatal cases to the end, suggests possibilities of bacterial infection through the extension of a fracture by fissures to the internal ear where an old otorrhea can supply the material in abundance for polluting the discharge from the interior of the skull; or, by the destruction of the membrana tympani, establish direct connection on one side with the air through the external auditory meatus and by the Eustachian tube to the cavity of the naso-pharynx, which Paul Raugé terms "the storehouse from which the infective elements passing through the tube into the tympanum are derived." Fissures communicating directly with the nasal cavity are of necessity open to the same infective influences.

A large percentage of those who die from skull fractures have these bloody or serous discharges, also those who survive for more than five or six days and then die. On the other hand, a good proportion of those who recover have the same history; from which it is proper to infer that such discharges are not in themselves necessarily fatal, nor the bony fissure associated with them. Another explanation for fatal cases must be found either in the character of the injury to the brain and its vessels, or that of the fissures through which the discharges escape. Admitting that cases of severe contusion or laceration may die in a few days, or less, with elevated temperatures but without septic infection, until time and observation shall prove that question beyond doubt, we have left as an active factor in the results, the differences in fissures produced by their location, the parts toward which they trend, and the mobility of the bones which they separate.

A fissure through bones fractured with so much force as to leave them loosely connected would be more likely to supply an avenue for infective material to reach the skull cavity than one that could be barely detected and closely resembled a crack in glass or porcelain. The variations between these extremes are common to all fractures and may explain a part,

at least, of the differences of results in cases presenting similar symptoms. Though the flow of blood or serum may be nearly alike in a given number of cases, the quantity is not a safe guide to the extent of bone separation.

I need not dwell upon the difficulty of making the middle ear as aseptic as it should be, to warrant a communicating opening with the brain free from danger. The cavity of the skull stands with that of the peritoneum, in the importance of maintaining perfect aseptic defenses. The most dangerous of the combinations described, a loose fracture extending into a suppurative ear, of long duration, with fresh bloody or serous discharges, suggests a way for attacking less serious cases, by approaching the septic area from the region of the direct injury. By the use of the rongeur, a fissure extending in the direction of the ear can be widened into a channel of half an inch, to the base, through which the brain or dura may be lifted with a blunt retractor and the extent of the fissuring determined. The auricle may then be dissected forward so that a fissure can be followed to the mastoid and into the auditory canal, permitting the protection of its inferior aspect, for a distance, by gauze. Having inserted a protection of gauze between the upper aspect of the fissure and the dura or base of the brain through the channel made by widening the fissure, the latter also may be packed with gauze connecting it with the gauze at the vertex, limiting hemorrhage and providing an excellent drainage apparatus from the vertex to the base of the skull without causing undue brain pressure. With a previous history of a suppurative ear the tympanum should be freshly disinfected after carefully protecting the injured parts. The auricle is then rolled forward and the region included in the aseptic dressing.

As the possibilities of infection can not be estimated before unfavorable symptoms develop, and as it is then too late to institute aseptic measures, however radical, a conservative treatment would naturally include, at the first inspection of the wound, a most rigid asepsis, the following out of fissures with the utmost precision, uncovering the whole circumference of the skull opening for that purpose, and providing unlimited drainage by widening the fissures into loosely connected bone, that extend in the direction of the base.

When nearly 50 per cent of brain abscesses originate in suppurative ear diseases, the isolation of this region from the brain and its attachments during the repair of a fractured skull becomes a serious question; whether, in view of a steadily increasing temperature in spite of our precautions, and in the absence of other causes, it may not be justifiable to make a more radical clearing and asepsis of the ear cavities than can be obtained without anesthesia. The danger associated with such a procedure through the possibility of forcing, by washing under pressure, septic material from the tympanum through the fissure to the interior of the skull, emphasizes the importance of an adequate *primary* asepsis of the ears in fractures connected with them.

Death may follow ear suppuration by injury from below as I have observed in a hospital case some years ago, where an attempt was made to commit suicide by firing a revolver, ball caliber 38, into the neck at a point in front of the sterno-cleido-mastoid muscle and on a level with the angle of the lower jaw. The wound of entrance passed directly upward between that bone and the mastoid process and perforated the meatus, where the ball was tightly wedged and could be felt from the outside with a probe passed by the ear, as well as through the wound from below. Ready access to the ball was obtained by dissecting the auricle forward. After its removal suppurative middle ear disease followed and the patient died from a large cerebral abscess of the right hemisphere immediately above the infected area as shown by autopsy.

In conclusion I will add one case only as an instance of what the complete exploration and widening of fissures may accomplish in the prevention of infection through its abundant provision for drainage and asepsis.

A well-developed man, M. S., age 36, entered the Massachusetts General Hospital with the history of having been struck on the head with a large piece of coal that had fallen thirty feet. He was conscious, rational and without paralysis. The pupils were equal and reacted to light. Pulse 100 of fair strength. There was bleeding from the right ear and at the parieto-occipital angle a scalp wound two inches long connecting with a depressed fracture. The head was shaved and made aseptic.

Upon uncovering the fracture a circular depression of two inches diameter was found with shelving edges. After removing a few projecting points with the chisel, the fractured bone was elevated and the dura exposed. It was darkened from contusion but not torn. Pulsation was slight when the fragments were removed, and hemorrhage free.

Upon inspection of the opening into the skull a fissure was found an the right border extending in the direction of the right ear. The scalp was then dissected up in the direction of the fissure until the external auditory canal was reached. As the auricle obstructed a complete exploration, the incision was continued in the direction of the mastoid and the bony canal exposed by dislocating the auricle forward, showing an extension of the fissure anterior to the mastoid into the canal. The separation of the fractured bones was complete, permitting their easy displacement, to and from the brain, but not laterally from the line of fracture so as to permit a satisfactory examination.

It was clear that the hemorrhage from this fissure unless arrested promised everything in the way of sepsis. To close it and at the same time supply necessary drainage for the cavity above, it became necessary to widen the fissure to the width of the rongeur (one-half of an inch), from the opening at the vertex to the level of the base. Then it was easy to lift the dura from the region of the fissure and after washing out the cavity to pack it with iodoform gauze as before described. A few silkworm gut sutures through the skin and across the channel helped to keep the gauze from becoming displaced, and over all the usual aseptic dressing was applied, including the external ear.

His temperature reached 101 degrees for one night (the third after the operation), then remained between 100 degrees and normal during the succeeding two weeks. The pulse ranged between 60 and 75. He had a slight headache on the first day after the injury. The gauze drains were gradually removed; upon the thirteenth day the wound was granulating well and he was up and about the ward. There was deafness of the right ear and some facial paralysis of that side.

He was discharged well in two weeks, previous to which his ear was examined by Dr. J. Orne Green, who found that the fracture had involved the labyrinth with the facial and auditory nerves, and made the prognosis of permanent deafness.

DISCUSSION.

The Secretary, DR. W. L. ESTES, said: It seems to me that the questions involved in this paper should not pass unnoticed, as they confront every surgeon and may occur to every practitioner. Dr. Beach has brought out with great clearness the necessity of disinfection, the production of a septic state and the employment of proper drainage. These are the principles on which every surgeon works. Fractures at the base of the cranium are those which are perhaps least practicable in obtaining thorough asepsis and drainage. It seems to me that physicians do not recognize the necessity of proper disinfection of the avenues of asepsis, i. e., the nares and the external ear. It has been my fortune to have to treat cases which had been seen previously by the family physician who was not accustomed to work in aseptic surgery, and I have found that there has been absolutely no attempt at disinfection of the nasal passages or the external auditory meatus when all the symptoms have led to a fracture involving the base. It seems of the greatest importance that this Section should advocate and impress upon practitioners the absolute importance of disinfection when there is no question about the external cavities being involved. It is my custom to thoroughly douche or spray the nasal cavities, and to plug them anteriorly and posteriorly, if necessary, with some disinfectant gauze. After thorough disinfection of the external auditory canal I plug it also. Now as to drainage, it is sometimes a serious matter to do this in fractures of the lowest basilar indication. If it involves the area which is posterior to the auditory canal, it may be an easy matter, but if it involves the anterior area, it is more difficult. There is no question that the propositions of Dr. Beach are the proper ones. No matter what the danger may be, the greatest danger is in neglecting the matter. It seems of the greatest importance to widen the fissures, if necessary, and to be sure that adequate drainage is provided. The question of hemorrhage is a most dangerous one. The sinuses need not necessarily be injured, but the meningeal vessels would probably be those especially involved. Great care and blunt lifting of the dura will usually permit the securing of proper drainage.

CEREBRAL SURGERY; REPORT OF CASES.

Read in the Section on Surgery and Anatomy, at the Forty seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY J. C. OLIVER, M.D.

CINCINNATI, OHIO.

As this paper is one dealing with the general subject before this Section, I shall simply report cases, knowing that the points in regard to cerebral surgery as a whole will be taken up and discussed by men far abler and more competent than myself.

Case 1.—This case is presented, solely for the purpose of illustrating the very great difficulty which occasionally surrounds our attempt at cerebral localization in traumatic cases.

Robert C., aged 59, finely developed and nourished, February 22, 1896, fell about thirty feet through a dust chute in a cotton factory. Probably remained lying at the bottom of the chute for about one hour before being discovered. I saw him him at 8:30 P.M., Feb. 22, 1896, in consultation with Drs. A. R. Walker, W. H. DeWitt and P. W. Good. This was about four hours after the accident.

Examination showed an extensive bruise of the scalp in the median line of the vertex, extending slightly farther to the left than to the right side. No fracture of the skull apparent. There was ptosis on the left side, hemorrhage from the left nostril, motor aphasia, both pupils were midway between contraction and dilatation and did not react. Patient was restless, would arise from the bed and could stand upon his feet. Both arms and legs were used freely. He could understand what was said to him and made efforts to respond but was unsuccessful. No vomiting. Examination of chest revealed fractures of second and third ribs about the angles. The symptoms otherwise were negative.

Diagnosis: Fracture of base of cranium and fractured ribs. A very guarded prognosis was given. An ice-cap was ordered for the head and K. br. given every three hours in scruple doses.

February 23, patient seems some brighter; restlessness much less; sleeps soundly, snores considerably. Ptosis seems somewhat less. Other symptoms about the same. Continued treatment. Slight fever developed to-day. The future history of the case is one of increasing fever and gradually deepening coma. I did not see the case again until after death, he, in the meantime, being under the care of Dr. A. R. Walker. He died at 9:30 A.M., Feb. 26, 1896. Temperature just before death, 105.

Autopsy was made by Dr. Frank Fee, six hours after death. P.M. rigidity well marked. P.M. staining slight. Prominence corresponding to bruised area on vertex, depression anterior and posterior to it. Bruising over left side of chest.

Head: Large effusion of blood in the scalp at the vertex. No fracture. Brain had small bloody effusion in the most posterior and lowest part of the occipital lobes on each side, most marked on the right. Otherwise brain normal.

Meninges: Smoky from beginning inflammation. No pus. Middle meningeal artery of left side ruptured, about a dram of blood effused.

Base of skull: Two distinct fractures, one of left orbital plate and one of left cribriform plate. Fracture not extensive. Skull very thin.

Chest: Second and third ribs fractured posteriorly, fourth, fifth, sixth and seventh fractured near junction with costal cartilages. Heart and lungs normal.

Abdomen: All organs normal except kidneys and liver; these were fatty and the left kidney presented three cysts.

Cause of death: Fracturæ basis cranii.

Case 2.—Dr. H. H. Hoppe, Neurologist to the Cincinnati Hospital, had this man in his service. In order to save time I will abridge the medical history and confine myself to the essential points. These were Jacksonian epilepsy, the convulsion always beginning in the left leg, then involving the left arm, then the left side of the face and then becoming general. These convulsions occured in groups, so that he would have ten to twenty in a day (status epilepticus). Following the convulsion the patient would have a left sided paresis, which would only remain for a few hours. After passing through these attacks, the patient would become maniacal, in which condition he was dangerous to those about him. These were in brief the only points bearing upon diagnosis.

From the above symptoms Dr. Hoppe concluded that some irritation existed in the leg center on the right side of the brain, and turned the case over to me for operation.

On August 31, 1894, after the usual preparation of the patient and site of operation, he was taken to the amphitheater for operation. Chloroform was the anesthetic used. A crescentic incision was made over the right parietal region, the bone having been previously "scored" with an awl to mark the course and location of the Rolandic area. After the flap had been turned back and the hemorrhage controlled, an inch trephine was applied and a button of bone removed over the area corresponding to the leg center. Before using the trephine, there was noted a blue line in the bone running downward and forward, almost parallel to and about one-half inch behind the Rolandic fissure. The opening in the skull was enlarged by means of a rongeur forceps, downward and forward. In the process of enlarging the opening, there was opened a large vein running in the diploe. This vein was what caused the bluish line above noted. It had eroded the inner table of the skull and had caused an absorption of the dura immediately under it, so that there protruded through the dura, a hernia of the pia and brain. I should state, lest the above description be misleading, that there was a varicosity in the vein

about the size of a pea, and that it was at this point that absorption of the outer and inner tables and dura had taken place. The line of the vein was followed with the rongeur forceps, the dura was opened by a crucial incision and both it and the pia were found much thickened and edematous. The convolutions of the brain appeared normal, consequently no further exploration was made.

To arrest the hemorrhage from the vein in the diploe, it was found necessary to close the channel with a piece of sterilized match, this being left *in situ*. The incisions in the dura were sutured with interrupted catgut sutures, the flap from the scalp being closed with a continuous silk suture. The head was enveloped in an aseptic dressing, held in place by a crinoline bandage.

At 7 P.M. on the day of operation, the patient was in good condition, the pulse was good and he was comfortable. The dressing had to be changed because of the blood soaking through it. On September 1, the dressings were reapplied. There was but little external hemorrhage, but a considerable hematoma had formed under the scalp. The edges of the wound were slightly separated with a pair of artery forceps and the blood allowed to escape. Temperature normal. September 6, stitches removed; no suppuration. Examination of special senses negative. For the first two days after operation the patient was restless, irritable, exacting and surly. Since then he has been much more amiable. On September 19, a note says there have been no bad symptoms and he pronounces himself well. September 26, patient complained of pain in the left leg, chiefly in the region of the knee; is unable to explain the same. Examination negative. Says he has had no symptoms such as he formerly had when a convulsion was impending. October 1, he is up and around the ward. Says he feels perfectly well.

Following the operation, the patient experienced a complete cessation of convulsions for a period of six months; after this he began to experience pain in his left leg and there was a gradual return of the convulsions. He re-entered the Cincinnati Hospital June 4, 1895, and I again saw the case with Dr. Hoppe. We believed the return of the convulsions was dependent upon the fact that adhesion of the membranes to the brain had taken place and the irritation came from this condition.

With a view to remedying the condition I again operated upon him. Very dense adhesions were found over the area of the former operation. These were very carefully separated and a plate of gold foil was placed between the surface of the brain and the cranial flap. The operation was a very bloody one.

Following the operation there was nothing of importance to note. The wound healed by primary union. The patient remained in the hospital until October 12, when he was transferred to the Infirmary. In a few days after his transfer I was informed that he had suddenly died during the night. None of the attendants knew the manner of his death but it is supposed he died in a convulsion.

By a piece of good fortune I obtained the opportunity to examine the head. The plate of gold was in position and had accomplished the purpose for which it was inserted. There was no gross lesion of the brain.

Whether the venous varicosity was the cause of the epilepsy or not, is an open question. Dr. P. S. Conner, of Cincinnati, showed me a portion of the occipital bone which had been perforated by a varicose vein. In this case the patient had suffered from epilepsy during life and no other cause than the venous enlargement could be found post-mortem to account for the condition.

Case 3.—This was a private patient of Dr. Jos. Eichberg. The brilliant diagnosis was made by him and we are indebted to him for the medical history.

Wm. S., aged 19; family history negative. The patient had been working in a machine shop. No history of any injury for the last thirteen years. At that time there was a slight scalp wound (superficial) which has left a cicatrix about one-quarter of an inch in length, an inch to the left of the median line over the coronal suture; scalp around the cicatrix was not adherent. Has had no serious ailment until the present time. In June of the present year (1895), a swelling developed about the left eye.

Report of Dr. Jos. Eichberg: On the afternoon of the day of admission, I found, on entering my waiting room, the patient seated in a chair in an attitude of extreme dejection, the head lolling backward on the shoulders and the eyes partially closed, face extremely sallow like the color observed in pyemia or chronic sepsis, and expressive of pain.

When urged to get up, the patient walked into the examining room unaided, but with a slightly staggering gait. There was considerable hesitancy in the understanding of questions, but the answers were prompt, phonation was clear. There was great difficulty in any sustained effort at attention, so that the patient would have to be recalled from a sort of somnolent condition which seemed to supervene a few seconds after any intelligent effort. Patient stated that he had lost 27 pounds in ten weeks and that he suffered great pain over the entire head, pain being constant but accompanied by exacerbations of most intense suffering. The focus of greatest pain was always located on the left side toward the frontal region; from this point the pain radiated to other parts of the head. The bowels had been constipated, but this was possibly due to large doses of morphia necessitated by patient's insomnia, the pain in the head being worse at night. On testing vision it was found to be 20–70 in both eyes, but in the effort of looking at the card the patient would lapse again into stupor. According to the mother's statement, the somnolency had rapidly increased in the last forty-eight hours without any relief of the pain. There was found a paresis on the right side involving the face and both extremities; this existed without the knowledge of the patient or his friends, being too slight to attract attention, and affected the motor functions more than the sensory. Though the patient was a right-handed man, the muscular power of the right hand was manifestly less than the left. The pupils of both eyes were dilated and equal, dilatation existing in spite of the giving of morphia in large doses. Pupils reacted promptly to strong light, becoming dilated almost immediately after the stimulus was withdrawn. The tongue protruded in the median line. With the ophthalmoscope a very characteristic choked disc was found in the left eye. Veins exceedingly tortuous and enlarged; convexity of papilla very evident. The deep reflexes were normal. Slight scar noticed below the supraorbital ridge, where, according to patient's statement, a swelling had been incised two weeks after the onset of his illness. Temperature 98 in the mouth. Pulse 84, irregular and rather hard. Breathing 22, also irregular in rhythm. Lungs normal; heart normal; spleen slightly enlarged; face emaciated.

Diagnosis: Cerebral abscess of left frontal lobe,

producing paresis of right side from indirect pressure against internal capsule.

Dr. Eichberg asked me to see the case with him on the evening of Sept. 11, 1895, and to come prepared to operate for cerebral abscess. We saw the patient together at about 9 P.M. A young man of good physique sat in a chair apparently oblivious to all that was going on around him. The other symptoms indicating an operation have been so well described that I shall not repeat what has already been said. This stupid condition was so marked that I asked his father whether the boy had ever been bright or intelligent. He assured me that the boy was naturally bright and was a competent machinist. Arrangements were immediately made for opening the skull. At the consultation with Drs. Eichberg and Kebler, the question of localization had been thoroughly discussed and we agreed that the trephine opening should be made over the left frontal region, as we believed the abscess to be located in that part of the brain, and that the paretic symptoms were due to indirect pressure. A point of interest, and possibly of importance, was that the scar from an old injury (inflicted thirteen years previously) was plainly visible over the left frontal region.

After the scalp had been shaved and sterilized, a horse-shoe shaped incision was made and the tissues rapidly retracted from the bone, an inch and a half trephine was then applied and the button of bone removed. The dura mater bulged strongly into the opening and showed no pulsation; the dura was now opened by crescentic incision and detached from the convolutions. A grooved director was passed into the brain substance in several directions; finally a slight resistance was encountered about one inch below the surface, and when this was overcome by pressure upon the director, pus flowed along the groove. A pair of hemostatic forceps was now passed along the director and the blades spread apart; this permitted a free discharge of the pus. After the pus ceased flowing, I passed my little finger into the cavity and by so doing discovered a second abscess, which was opened by pushing a finger through its limiting membrane. Although the quantity of pus was not measured, I am inclined to believe that I am not overstepping the limits of truth when the quantity is given as three ounces. A large drainage tube was carried into the cavity and gauze packed around it, the ends of the gauze being brought out of the lower angles of the wound. The flap was perforated and the drainage tube brought out of the opening. The edges of the incision were now brought together except at the lowest point, where the gauze was brought out. The usual aseptic dressings were applied and the patient put to bed in very good condition.

After History: Patient recovered very nicely from the anesthetic. When he became conscious, there seemed to be some improvement in his mental condition. Some convergence of the eyes still present, right pupil slightly more dilated than the left. Sept. 12, 1895, the wound was redressed this morning. Considerable pus was present under the flaps; to facilitate the removal of this, a couple of stitches were taken out. The mental condition and paresis are improved. September 13, some convergence of eyes still present. Pupils are equal and react to light and accommodation. Vision for near objects good, but diplopia exists when distant objects are looked at. A considerable edema of the side of the head and face was present this morning. A few more stitches were removed and the flaps separated by a pair of forceps; this manipulation permitted quite an amount of pus to escape. On the following day, September 14, a fungus cerebri began to present. The drainage tube, which had never been at all satisfactory because of the stopping up of its lumen, was now entirely discarded and gauze drainage alone was used. The patient from this time on showed a steady improvement. The fungus cerebri was allowed to take care of itself, which it did in a most satisfactory manner, finally disappearing about four weeks after the operation. The temperature at no time subsequent to the operation reached 100, and the convalescence was uninterrupted, unless the fungus cerebri could be called an interruption.

One curious feature of the case was the behavior of the pulse during the operation. When fully under the influence of the anesthetic (chloroform), the pulse was about 160 per minute; when the abscess was punctured, the number of beats suddenly fell to about 60 per minute and remained so. At the present time the patient is in perfect condition. He has resumed his occupation, that of a machinist. There are no symptoms of the trouble present. His mind is as good as it ever was.

Case 4.—Mr. C. S. B., aged 26; printer; white, well developed and nourished. Father living and healthy, mother healthy. Had jaundice ten years ago. Had the usual diseases of childhood. Had peritonitis two years ago. Otherwise has been healthy.

The early history of this attack as furnished by Dr. E. E. Sattler is as follows: In July the patient first came to my office with an intense, acute otitis media, drum bulging, fluid in the middle ear, intense suffering. A paracentesis of the drum membrane was made and fluid of a mucous character was evacuated. The fluid at that time was more mucous than purulent and has continued so ever since. About ten days later, the pain increasing and the discharge showing signs of diminishing, the drum membrane in the most prominent part was punctured with relief to the symptoms. The puncture was followed by profuse discharge. Since that time the ear has discharged freely and the patient made daily visits to the office until last Saturday, Oct. 12, 1895. During all this time he has been following his usual avocation, that of a postal clerk.

On Sunday afternoon, October 13, Dr. Sattler was called to see the patient at his residence and found him comatose, pulse about 90, pupils contracted, size of a pin head, slightly reacting to light, Cheyne-Stokes respiration. It was immediately recognized that some serious implication of the brain was present, most probably secondary to the middle ear trouble. A hypodermic of pilocarpin muriate was given, which was followed by profuse diaphoresis. He seemed some better that night, partially came out of the comatose state, made incoherent remarks and at times even recognized his relatives for a moment or so. On Monday he was rational, off and on, but soon sunk into a semi-comatose state from which, however, he could be rallied. Pulse weak and fast, 120. His removal to the hospital was advised in order to have an operation performed upon him. The mastoid has never been involved, but he has had severe headaches occasionally.

The notes of the case taken at the Cincinnati Hospital are as follows: Earache three months and a half ago, for which he consulted an aurist, under whose care he has been ever since. The notes regarding that period are those given above. The present attack began with a severe pain under the left frontal eminence. The patient was depressed and intellect clouded. Stupor increased, he became restless at

times. Yesterday morning the mental condition was worse but he could still answer some questions. Last night he was very restless, had high fever (103), and was delirious. This morning he was partially rational. Mother noticed increasing torpor to-day. He was unconscious upon admission at 5 P.M. Examination of the urine revealed a small quantity of albumin. Examination was as follows: Weight 145 pounds, height 6 feet 2 inches, right half of scalp shaved since arrival in hospital. Semi-comatose condition. Resists movements of head and eyelids; may be partly aroused by questioning, nods head in answer; unable to protrude tongue. Short intervals of consciousness during examination, followed by relapse into stupor.

Cranial Nerves.—First pair: No response to olfactory stimulation by ammonia. Third, fourth and sixth: Divergent strabismus; eyeballs deflected upward and outward; attempts to resist opening of lids by raising right hand; pupils small, equal; reaction to light sluggish. During short periods of consciousness eyes directed more forward but right eye still diverged. Individual ocular muscles can not be examined. Fifth: No response to tactile stimulation; shows appreciation of pin prick over left cheek, left side of nose, right upper cheek and forehead; always uses right hand in attempting to protect himself from examination. Both masseters retract. Seventh: Face not notably drawn to one side; no evident facial palsy. Eighth: Pulse 132, regular, good tension, occasionally intermits; respiration regular, 26; no stertor. Ninth: Patient swallows well; no tremor of tongue. Eleventh: Trapezii resists traction; unable to protrude tongue.

Motor Symptoms.—Upper extremities: Spotaneous movements; power markedly diminished; resists extension of both upper extremities; flexes them spontaneously. Lower extremities: Pigment cicatrix one inch in diameter over right tibia.

Sensation.—No patella reflex nor ankle clonus; some tendency to spasm of flexors of knee: no rigidity of flexors of ankles. Plantar reflex present. Abdominal reflex present and active; epigastric reflex present and active. No response to ordinary sensory stimulation of upper extremities. No response to pain or tactile stimulation of lower extremities below upper third of tibia.

Occasional drawing up of both corners of the mouth, as in trismus, was noticed. The patient was extremely restless, in almost constant motion during the examination.

A consultation was held at 5 P.M., Oct. 15, 1895, with Drs. Thorner, Langdon and Dandridge. From the symptoms presented an opinion was reached that we had to deal with either 1, an abscess located in the temporo-sphenoidal lobe or cerebellum; 2, diffuse purulent meningitis; or 3, a thrombosis of the lateral sinus. The unanimous upinion of the physicians was that it was impossible to distinguish between them and that an exploratory trephining ought to be done, first over the temporo-sphenoidal lobe, and if unsuccessful here, to open over the cerebellum on the right side. This being agreed to, the operation was set for 8 P.M. Drs. Dandridge, Thorner, Robert Sattler, Langdon, Fackler, MacMillan, Tate, Evans and the internes were present. After the usual preparations, the temporo-sphenoidal lobe was located at a point one and three-quarter inches above and one and one-quarter inches behind the center of the external auditory meatus. A half-inch trephine opening was made here and then enlarged with rongeur forceps. When the dura was reached it was found to be tense but did not bulge. The pulsation of the brain was well marked both to the sense of sight and touch. A flap of the dura mater was then laid down and a grooved director passed into the brain in various directions. No pus nor resistance was found. An artery in the diploe caused considerable hemorrhage but was finally controlled by pressure. The scalp was now stitched in place and the wound closed without drainage. So soon as the former wound was closed, the skin and muscles of the back of the head and neck were laid back by a horseshoe shaped incision. A trephine opening (five-eighths of an inch) was made in the bone on a level slightly below the external occipital protuberance and slightly nearer the mastoid portion of the temporal bone than to the protuberance. The bone was tolerably thick. When the dura was reached it appeared normal, the pulsations were present and marked. After opening the dura, the cerebellum bulged into the wound somewhat. Exploration with a grooved director failed to locate any pus. The wound was sutured and the patient returned to his bed. He lived about forty-five minutes after his return to the ward.

A postmortem examination of the head showed diffuse purulent meningitis involving both the convexity and base. There was marked enlargement of the veins of the pia, and many of them showed dark clots in their lumen. The petrous portion of the temporal bone was carious for a distance of about three-quarters of an inch back from its apex on its superior surface. The upper edge of the carotid canal was partially destroyed and the infection seemed to have followed the line of the vessels, and did not, as is usual in these cases, pass through the roof of the tympanum at its thinnest portion, the tegmen. Examination of the parts showed that the trephine openings were properly located, and that had an abscess existed in either the right temporo-sphenoidal lobe or in the cerebellum, we could readily have evacuated it.

The important question in this case was that of differential diagnosis. It was readily apparent that some grave intracranial condition existed; it was also a fair interpretation of the symptoms to conclude that a meningitis was present, but it was impossible to affirm that the meningitis was *not* dependent upon a localized accumulation of pus which had produced a meningitis by extension of inflammation. The sudden onset, the rapid pulse, high fever (103), contracted pupils irresponsive to light, the restlessness, delirium, trismus, and the absence of localizing symptoms, all spoke in favor of a meningitis. We are all well aware, however, that an abscess may exist in the temporo-sphenoidal lobe or in the cerebellum, without distinct localizing symptoms. The man's condition was desperate, and would certainly have soon terminated fatally unless relief was afforded him. Such relief was impossible save through surgical intervention, hence it was our duty to afford him the chance offered by an operation.

While the termination of the case was an unfavorable one, it presented features of unusual interest. It emphasizes the fact that a differential diagnosis of cerebral abscess is a very difficult one. It also shows conclusively that the brain symptoms following middle ear trouble are not always dependent upon localized accumulations of pus within the brain. Another point of interest is that the mastoid cells escaped

infection. The route pursued by the caries explains why they were not infected.

Trephining for drainage and relief of pressure has been recommended in purulent meningitis, but the results are not brilliant. After some experience in pathologic work, I am convinced that there is another element at work in cases of meningitis besides the pressure and effusion to account for the almost invariably fatal result in these cases. The amount of exudation is ordinarily but small, and the resulting pressure should not be so great as to cause the symptoms and usual termination. The septic element should receive more recognition than is at present accorded it. As is well known, the conditions for absorption of septic matter are most favorable, and it seems reasonable to conclude that death is caused by the septic intoxication rather than by the pressure. If we grant the septic intoxication, we need not be surprised to learn that opening the skull and dura in these cases is not productive of amelioration of the symptoms.

DISCUSSION.

DR. RANSOHOFF, of Cincinnati—In the case reported it is said there was considerable hemorrhage, which is very frequent. Quite recently I have adopted a method by which hemorrhage from the scalp can be reduced to a minimum. Very often, owing to the loss of blood from the division of the dura, and from the cerebral veins after an operation for the removal of a brain tumor, the operation can not be completed at one sitting. Every drop of blood that is saved is of moment, and we all know that under the older methods much blood was lost. The use of the Esmarch strap about the scalp encircling the skull nearly upon a line with the base, is something that every one knows is applied with much difficulty. After much care, sometimes, the scalp sinks down into the orbit and the entire object of the use of the strap is lost, and the hemorrhage is profuse. I will call attention to a method of dividing the scalp without loss of blood, which method is a very simple one, although I have never seen a description of it. I practiced it recently in a case of sarcoma of the dura mater in which the tumor was as large as a small orange, after perforating the skull. It had been operated on twice before on the supposition that it was a wen. To prevent hemorrhage I introduced, about an inch from the surface of the tumor, a continuous chain suture, drawing it tight around the entire line of the incision. When it was drawn tight, which could be done rapidly, the entire area of the skull was made absolutely bloodless, and the incision was made within the line of the chain. When one considers the size of the incision that must be made for trephining, and difficulty of grasping the vessels in the tense scalp, one can readily appreciate how much blood will be saved the patient by using this suture. The first dressing must be changed in twenty-four hours for the removal of the gauze packing, and in that case the sutures can be clipped and removed. The use of this suture for twenty-four hours will not in any way interfere with the vitality of the flap.

The Roentgen Ray and "Second Sight."—Dr. Ottolenghi, of Naples, has suggested, in *Riforma Medica*, that the supposed power of seeing through opaque media, etc., which is claimed by certain hysteric somnambulistic or trance subjects, may have some objective basis in the light of the recent discoveries of Roentgen. The author supposes that in the more or less extra-normal conditions of the nervous system obtaining in this class of patient, the retina may be sensitive to the X-rays, which, under ordinary conditions, fail to produce any impression. This suggestion is only meant by the author to apply to such cases as are inexplicable in any other way.

OBSERVATIONS CONCERNING THE LAW OF PRIVILEGED COMMUNICATIONS BETWEEN PHYSICIAN AND PATIENT, AS APPLICABLE TO THE DUTIES OF RAILWAY SURGEONS.

Read at the Second Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Ill., Sept. 25-27, 1895.

BY HON. TRACY C. BECKER.

BUFFALO, N. Y.

Gentlemen of the Association.—I highly appreciate the honor conferred upon me by being invited to deliver an address at the meeting of the American Academy of Railway Surgeons on some topic connected with the medico-legal aspects of railway surgery; and upon reflection, have deemed it advisable to devote the time alloted to a consideration of the laws concerning "Privileged Communications between Physician and Patient," particularly as regards the application of these laws to the duties of railway surgeons.

As I understand the status of the members of your body, nearly every one of you is under contract of regular employment by some railway company, by which, in cases of accidental injury to its employes or its passengers, it becomes your duty to visit such cases and to give them the benefit of your professional knowledge and skill. If so, you are not, in the strict sense of the term, employed in your professional capacity by the party interested. It, therefore, becomes important for you to be informed as to how far any knowledge or information you may obtain while treating such patients can be disclosed without violation of your legal duties as prescribed by the statutes of the various States in which you perform those duties.

It is a singular and not commonly known fact, that under the English common law, while inviolable secrecy was required to be observed by attorneys with reference to communications which they received from their clients, no protection from disclosure in evidence in a court of justice was extended to communications between a medical man and his patient. The reason for this distinction has been said to be, that the privilege was founded upon considerations of public policy in the administration of justice in the courts. Attorneys were a part of their system, while physicians were no part of that system, and while the compulsory examination of lawyers as to communications received by them from their clients would tend to discourage confidence between client and attorney and to the suppression of truth in litigation, the disclosing of confidences given to physicians could in no way tend to weaken the administration of justice or to render it ineffectual.

The hardness and inequality of this rule, and the danger which was liable to follow from a disclosure by medical men of what they learned from patients as to their past life and family history, and the cause and character of their injuries, diseases and the like, have led to what was believed to be legislative reform in this country, and statutes have been passed in many of the States and Territories restricting disclosures by physicians of information received by them while acting in their professional capacity. Up to September 1895, the following twenty-five States and Territories had statutes of this character, viz., Arkansas, California, Colorado, Idaho, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Montana,

Nebraska, Nevada, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Utah, Washington, Wisconsin and Wyoming; while in the other States the rule of the English common law is still followed and there are no restrictions upon such disclosures.

In many of the States there is a declaration of the policy of the statute prefixed to it, and this declaration is to the effect that there are particular relations in which it is the policy of the law to encourage confidence and to preserve it inviolable, and that, therefore, the prohibition of the statute is laid.

In California, Idaho, Minnesota, Montana, North Dakota, Oregon, South Dakota, Utah and Washington, the statutes are made to apply solely to civil actions. The statutes in other States make no distinction between civil actions and criminal actions. In some States, for example in New York, the statutes permit of a waiver of the privilege after death of the patient by his heirs or next of kin. In other States the power of waiver dies with him, and no one has the power of waiver after his death.

In Arkansas the information must be a *confidential* communication. (Collins v. Mack, 31 Ark. 684.) But in other States the rule has received a broader interpretation, and the general tendency of the courts in those States is to give the statute broad scope and effect, and to bring within its restrictions every kind of information which the medical man gains while in attendance upon his patient about his case; and the proper test may be said to be whether such information would have been given him had he not been in attendance in a professional capacity. It, therefore, includes not only what the patient tells the physician as to the disease or injury, and as to the cause of the injury, but the physician can not disclose what he learns by his own examination and investigation, or from statements made by patient even in the presence of a third party.

Hence it has been held that admission made by a patient to his physician tending to show contributory negligence on the part of the patient at the time he received the injury, are not admissible; and a physician has been prevented from disclosing whether his patient said that the car on which he was injured was in motion when he received his injury, because the injury would be likely to be more severe if the car was in motion. (Reynolds v. Burlington C. R. & N. R. R. Co., 65 Iowa 152.)

The fact that the physician does not prescribe for the patient, or actually treat him, is immaterial, for the status operates upon the communication itself and the professional capacity and presence of the physician. "If the act is a professional act, it is within the scope of the law. *Medicus optimus medicamentum minimum* is the maxim used in one case to illustrate this point." (In the Matter of Freeman, 46 Hun. 458.) Chas. A. Boston; Article on "Privileged Communications," in Witthaus and Becker Medical Jurisprudence, New York, 1894.

It has also been held by the United States supreme court, that in cases triable in the United States courts in States where, by law, such communications are privileged, the U. S. courts will enforce, as a rule of evidence, the rule laid down by the statute in such State. (Logan v. U. S., 144 U. S. 263. Conn. Mut. L. Ins. Co. v. Union Trust Co. 112 U. S. 250.)

Having thus briefly explained the statutory regulations concerning such communications and their scope and effect, the question suggests itself for discussion how far such rules apply to railway surgeons who, in the employ of their company, visit patients and gain information after an accident or injury, examining their cases and treating them in a professional capacity.

I have no hesitation whatever in expressing the opinion that a physician acting in that capacity and under such circumstances, although not strictly in the employ of the patient, necessarily gains his knowledge from the fact that his services are rendered in a professional capacity, and that, therefore, any knowledge or information which he obtains under such conditions can not be disclosed, except upon the express waiver of the patient during his life time, or, in States where that is permitted, by his legal representatives after his death; the single exception probably being that in an action against the physician for malpractice, if the patient testifies as to the manner of treatment, the physician is then at liberty to introduce his own testimony, or that of another physician, as to the facts thus put in issue by the patient. (Lane v. Boicourt, 27 N. E. Rep. 1111. See also, Winner v. Lathrop, 67 Hun. 511.) And the rule in California is that where a physician is cross examined by his patient, calling for privileged matter, the privilege is waived. (Valensin v. Valensin, 14 Pac. Rep., 87.) But in a recent case in New York it has been held that although a physician is compelled to sue his patient for the amount of his bill and the patient denies the employment, the physician can not testify to what he did or prescribed for the patient. In New York a very analogous case to the relations of railroad surgeon and patient occurred in the case of Grattan v. Met. Ins. Co., 24 Hun. 43; same case on appeal to the court of appeals, 92 N. Y. 274, where another person employed a physician to examine the patient and report, and it appeared that the person examined did not desire any knowledge as to his condition; yet the court held, that, as the examination was made as a professional act, the relation of physician and patient was established between the physician and the person examined even though there was only an interview. In another case in New York the public prosecutor sent a physician to a person for the purpose of making an examination, so as to obtain evidence against another person charged with crime, and the person examined accepted the services of the physician in his professional character, and it was held that the physician could not testify as to the results of the examination. (People v. Murphy, 101 N. Y. 126.)

It is true that there have been other cases in New York, and perhaps in other States, which seem to vary this rule somewhat. In one case, for instance, where the physician stated that he was simply there at the instigation of another party to examine him, and not for the purpose of prescribing, and the examination was held in the presence of the patient's attending physician, it was held that the relation of physician and patient was not established. (Heath v. Broadway & S. A. Ry. Co. 8 N. Y. Supp. 863. See also Henry v. N. Y., L. E. & W. R. R. Co., 57 Hun. 76. People v. Kemmler, 119 N. Y. 580. People v. Sliney, 137 N. Y. 570.)

In Missouri it was held that information as to the way in which an injury was inflicted is of the greatest necessity for successful treatment, and that it is information which physicians invariably demand and receive, and should be excluded. (Norton v. City of

Moberly, 18 Mo. Ap. 457. Streeter v. City of Breckenridge, 23 Mo. Ap. 244.)

If the rule be as strict as I believe and have stated it to be it becomes a serious question for your consideration whether or not an effort should be made in the different States to have amendments adopted which shall modify the statutes somewhat in that particular.

Speaking as a lawyer, I am inclined to think that the rule as it now stands is a salutary one, so far as relates to ordinary diseases and mental and physical conditions; but that where a railway surgeon is furnished by the railway company and sent from place to place to treat patients without charge to themselves, if they knowingly accept his services and proceed to give him an account of the accident, and to disclose circumstances which would benefit the company by showing, in case of suit brought by him during his life time, or his representatives after his death, that he had brought the injury upon himself by his own fault, the rule ought not to be so limited and restricted as to prevent the disclosure of what is thus learned.

While it is in a general way, as has been said above, important and essential to know the nature and cause of the injury to enable the physician to treat the injury properly, nevertheless it is not so absolutely necessary and essential that perhaps the only intelligent and truthful witness whom the railroad company could call to show by the admissions of the patient how his negligence brought about his injuries, should be excluded from testifying. This is a question which is peculiarly one for your own good sense and good judgment to determine.

The theory on which admissions of a party to an action are admitted on behalf of his opponent, is that he would not tell what was against his own interests. For this reason Mr. Best, in his admirable work on Evidence, divides admission evidence into two classes, one of which he denominates "Self-serving evidence," that is, declaration of a party in his own interest, which is never admissible," and the other which he denominates "self-disserving evidence," being declarations made by a party against his own interests, which are generally admissible against him.

To weigh and determine this question properly, you ought to consider whether anything in the interest of humanity and of the well being of your patients would be concealed by them if they knew that you would be permitted to testify to it afterward. If so, then, the rule ought not to be amended, and you would be the last persons in the world to ask that it should be. On the other hand, if the probabilities are that in ninety-nine cases out of a hundred, nothing would be concealed or untruthfully stated because the patient knew that his statements could be used against him, and that you would be able to treat your case just as well and as fully and carefully and successfully, then the prohibition of the statutes, as interpreted by the courts, should be modified.

It is doubtless true that the dictates of what was believed to be sound public policy led to the establishment of these statutes, but their conditions have often worked a perversion of justice in the courts, and go into court to recover the amount due him for services; still in all statutory enactments in a free country, the test of the law must be whether it works the greatest good to the greatest number.

Apply that test to the statutes under consideration in this paper for yourselves, and no doubt you will reach such a conclusion as will be eminently satisfactory to the dictates of professional etiquette, and to the duty that you owe to yourselves, your employers and to public sentiment.

THE BEST METHODS OF TEACHING.

Abstracts of papers read at the meeting of the American Academy of Medicine, Atlanta, Ga., May 4, 1896.

THE BEST METHOD TO TEACH PRACTICE OF MEDICINE.

BY J. C. WILSON, M.D.

The title of this communication has been selected by the Committee. The following method can not be regarded as "best" in any final sense, but as subject to alteration and modification according to circumstances. It is that employed in a medical school in which the speaker has the responsibility of arranging the details of the course in practice for large classes, and is the result of carefully considered progressive changes during a period of five years, starting with a systematic didactic course of three lectures a week and two general clinics a week. It is at present arranged for a three years' course. The four years' course to which it is now being adapted does not essentially modify the plan save in allowing the student more time for outside study and an increase in the number of hours devoted to actual clinical work.

The groundwork in physiology, visceral anatomy and the anatomy of the nervous system, histology, pathologic histology and morbid anatomy are preliminary to the course. The more thoroughly the student is grounded in these branches the greater will be his grasp of the subject of practice. The plan consists in systematic instruction in the following subjects:

1. Semeiology, including a discussion of the principles underlying physical diagnosis; one lecture a week, abundantly illustrated with diagrams, models, etc., delivered to the whole class of the second or third year, as the case may be.

2. Practical demonstration in physical diagnosis at the bed-side to the same class in sections. The sections vary in number according to the size of the class, but should not exceed fifteen men. The teaching is conducted by demonstrators, the roll is called and the work ranks in estimating the standing and progress of the student with section work in the laboratories.

3. Systematic didactic lectures by the professor of practice to the second and third or third and fourth year classes, as the case may be. This course covers two years. No effort is made to fully discuss every topic properly coming under the head of Practice of Medicine, on the contrary the consideration of very many diseases is brief and that of still more is omitted altogether. Important diseases, such an enteric fever, pneumonia, variola, diphtheria, malaria, endocarditis and pericarditis, blood diseases, the apoplexies, tabes dorsalis, forms of neuritis, epilepsy, chorea, hysteria, peptic ulcer, gastro-intestinal catarrhs, hepatic cirrhosis, visceral cancer, nephritis, diabetes mellitus, etc., are considered at length and in detail, an effort being made throughout to develop in each pathologic condition the interdependence of the morbid phenomena, the nature of the modification of physiologic processes to changes in structure, and stress being made upon etiology. The rationale of treatment is fully discussed. In advising therapeutic measures the lecturer invariably invites the attention of the student to the prin-

ciples involved. Available knowledge as to the natural history of disease is set forth. The discussion of differential diagnosis affords the opportunity for the consideration at some length of the morbid phenomena of associated and analogous disorders. It follows that such disorders may subsequently be more briefly considered to the saving of time and with no loss to the student. Thus, after a thorough study of enteric fever such less common febrile disorders as typhus and relapsing fever may be more concisely taught, or after such a study of pneumonia the consideration of bronchitis, broncho-pneumonia and the various forms of pleurisy may be made relatively brief, after variola the study of the other exanthemata may be condensed, and so on through the list. These lectures are fully illustrated by modern diagrams and models; nor is the use of the blackboard overlooked.

To those who object to teaching by lecture it may be said that this method has the advantage of a broader and more systematic exposition of the facts of medicine than any clinic, no matter how ample the material it can supply; that it is more suggestive and interesting than text-book quizzes, and that it invests the instruction with more or less of the personality of the teacher, according to his gifts.

4. During the two years occupied by this course two quizzes a week, forming part of the curriculum, are conducted by well trained competent demonstrators. One of these gentlemen quizzes upon the subjects of the immediate course during the week, the other upon the subjects of the course of the preceding year at the corresponding period. This arrangement gives the students at the same time a systematic and progressive review of the work of the two years.

5. General medical clinics are conducted twice a week in the amphitheater of the hospital, during the first half of the term by the professor of practice, during the second half by the professor of therapeutics. These clinics are attended by the members of the second and third or third and fourth year classes, as the case may be. From time to time they are conducted in the form of clinical conferences with students to whom cases have been assigned for especial study.

6. Special clinics on diseases of the nervous system, diseases of children, diseases of the skin and other subjects closely allied to the practice of medicine are conducted likewise in the amphitheater of the hospital by the clinical professors of the respective branches on certain days in the week. These clinics are attended by the students of the final year.

7. Ward classes for the study of clinical medicine, arranged for sections of the class during the final year. Attendance upon these classes is compulsory and has an equal value in making up the student's standing with section work in the laboratories.

8. Clinical microscopy, including practical urinary analysis, the use of the microscope, the staining of bacteria, etc., with especial reference to particular cases, is taught to sections of the class during the final year.

The purpose of this plan is not only to lay before the students the facts of *Innere Medicin* at sufficient length, but also from the most varied points of view; to familiarize him with those facts by constant repetition and renewed emphasis; to excite his interest and scientific curiosity in them by suggesting their analogies, relations and interdependence; and finally, to teach him the first steps of a technique in which training alone can make him an adept.

THE BEST METHOD OF TEACHING PHYSIOLOGY.

BY CHARLES D. SMITH, M.D., PROFESSOR OF PHYSIOLOGY, BOWDOIN MEDICAL COLLEGE, PORTLAND, ME.

What kind of physiology is it desirable to teach? Physiology of the human body. For what purpose is this to be taught? To place within the reach of the student facts which he may utilize. To accomplish these ends is a problem, the solution of which must vary with the average type of the class, the school, and the method of teaching employed.

Deficient preliminary education is fatal to a proper understanding and appreciation of the principles of physiology. A plan which seems to the writer to meet the requirements of the problem in the average school with the average students is outlined herein. The course should extend over at least two years. During the first, a knowledge of the functions of nutrition and reproduction should be acquired. He should, at the first, be made familiar with a comprehensive view of the chemic basis of the human body and the general properties of the muscular and nervous tissues, the functions of the cell, etc. During the second year, after reviewing the work of the first, the nervous system and special senses should receive special attention. Examinations should follow each year.

The advantages of this arrangement are: The student is given no more than he can fairly digest, his mind is not overcrowded or confused, he is not apprehensive of a final examination, and the course is progressive.

Instruction in gross anatomy and histology of the tissues and organs should precede the study of physiology. Experience in this two years' course has demonstrated its superiority over the plan which permits finals at the end of a single year.

The instruction may be given either by text-book, laboratory demonstration or didactic lecture. Each has its share of usefulness, no one is sufficient. The first is the most indispensable if the recitation is conducted along pedagogic lines. As to laboratory work, less need be said about *what* to demonstrate than *when*. It must supplement mental drill which has been obtained elsewhere. The lecture taken alone as a means of teaching may be objected to, its prime function is to supplement and enforce the teaching from the text-book and laboratory. A tendency in all departments of medical teaching is to crowd a certain amount of work in a certain space of time and to give weight to unimportant minutiæ. The desired end of imparting knowledge is much more easily accomplished by placing before the student a general idea and filling in details afterward.

Summed up, the writer would urge: 1, a composite plan of recitation, laboratory and oral instruction; 2, less complex topics for the first year with three hours in the class room and one in the laboratory; 3, in the second year, two hours in the laboratory and one in the class room; 4, purely experimental work elective as an advanced study.

THE BEST OUTFIT FOR MEDICAL STUDY.

BY F. H. GERRISH, M.D.

In addition to the branches generally taught in the common schools, the would-be medical student should have a good command of English, a reading knowledge of easy Latin, and familiarity with French and German. Arithmetic, algebra and geometry are necessary. Physics and chemistry are required as a pre-

lude to physiology, and botany and comparative anatomy should precede human anatomy. Logic is an important branch. Wherever it is possible there should be practical laboratory work, and the habit of note-taking should be cultivated. In this connection it was insisted that drawing ought to be required, on account of the invaluable aid which it gives the student, the physician and the surgeon. No one should be encouraged to study medicine who is not physically strong, of fair natural capacity, fond of biologic work, and morally pure.

MEDICAL LONDON.

NOTES FROM MY SKETCH BOOK.

BY L. HARRISON METTLER, A.M., M.D.
CHICAGO, ILL.

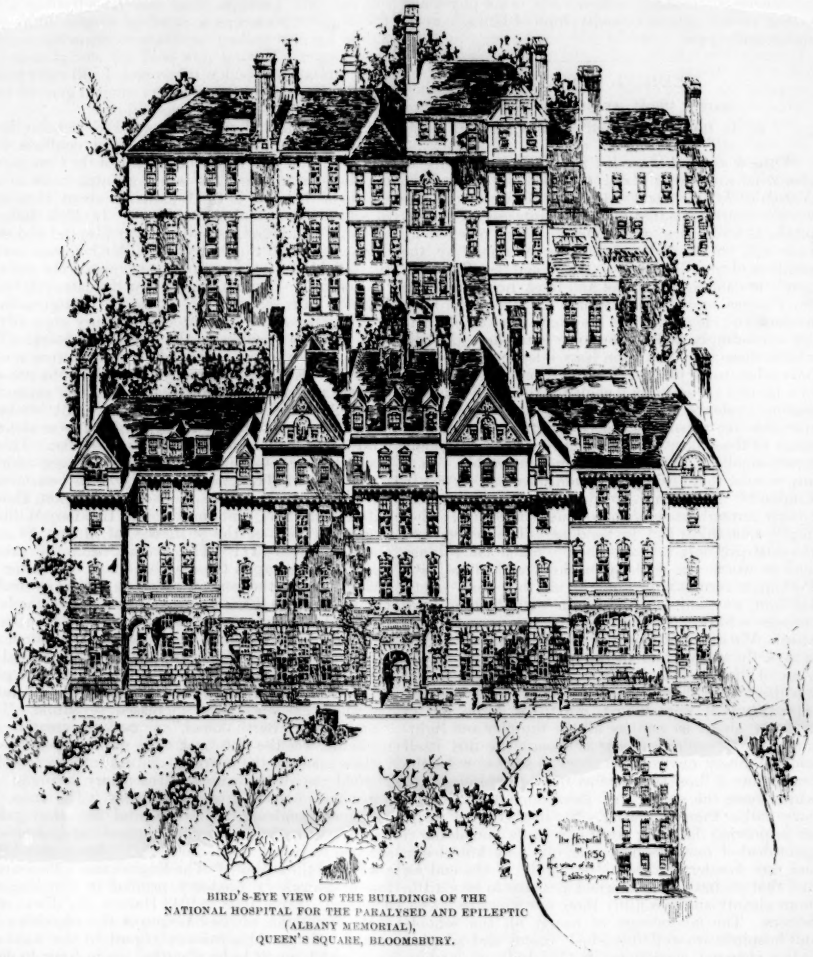
While a student abroad, I had the opportunity of observing something about the medical side of the *Nation of London*, as De Quincey loves to call the world's metropolis, that may be of interest. The hospitals, as a rule, are quite ancient affairs, patched up here and there, and occasionally enlarged by the addition of new buildings. Guy's and St. Bartholomew's are among the oldest and most honored, while St. Thomas' and Queen's Square are among the more modern and elegant. The museums of most of them are exceedingly rich. The poor wretches who die within these hospitals often leave a legacy; sometimes only a leg, to be pickled in alcohol or corked tightly in a jar and set away on a shelf for the edification of zealous students and the admiration of note-taking travelers like myself. On account of the antiquity of many of these hospitals the lecture rooms are small, musty-smelling, cramped and uncomfortable. Is it any wonder that antisepsis should have had its rise in England? The great Lister himself was once a promenader through some of these musty buildings. Evidently something had to be done. The broom and the dust-pan only raised a cloud to choke one's lungs and to worry the sores upon the wretched patients. Perhaps a germ was lurking in all this dust. Let's kill him, we said, and dose him with bichlorids or carbolic acid or any other available thunder and lightning! We did and hence arose the antisepsics, the sprays, the washes and all the rest of the business. In some of the newer hospitals, especially in America, it was discovered that sometimes a flood of clean water, especially if it were boiled, got those germs out of the way about as well as all the thunder and lightning; which made it appear as though the dirt itself and the musty environment *tout ensemble* were the originators of those septicemias, blood poisonings, etc., which made the surgery of days gone by almost a curse rather than a blessing. So, in all things, we go on improving, learning some new facts and doing a great deal of loud crowing over our new knowledge and our wonderful discoveries, while in the end we find that we have only learned perhaps to be a little more cleanly and less filthy than our unsoaped forefathers. The laboratories of nearly all the schools and hospitals are well furnished, roomy and adapted to the changed conditions in the study of modern medicine. What with wash-bottles, beakers, Bunsen burners, test tubes, reagents and germicides, with microscopes, spectroscopes, lactometers, urinometers, pulsometers, sphygmographs and a host of other harrowing apparatus and scientific complications, any country lad who comes up to study medicine ought to be glad to pay his fee, gulp down the knowledge doled out to him and leave a wiser man, or at least a better self-estimated one, than when he arrived. What the laboratories make up the lecture rooms are abundantly deficient in. Their poor illumination is enough to inspire another divine comedy. Their stiff-backed, uncushioned benches possess a surprising faculty for raising boils on ——, well, we'll say the elbows; but, perhaps, that has its advantages, for the student soon has a practical subject in himself and in his own *boiling* condition to begin his medical freaks upon. Having now paid my compliments to the hospitals of London in general, I will refer to two of them in particular, one a very ancient general hospital, the other a very new special one.

Under the first Henry, surnamed Fine Scholar, England began to recover from the civil conflicts that had been going on since the advent of the Conqueror; and London in particular was beginning to show the effects of the calm in the foundation about this time of some of her greatest buildings. In 1123 Rahere, the king's minstrel, established the hospital and subsequently raised the priory of St. Bartholomew beside Smithfield. In two inscriptions seen upon the walls of the hospital to-day, 1102 is given as the date of its foundation. This error has been traced to a careless transcription occurring in a fifteenth century copy of the life of Rahere written in the twelfth century. The hospital enjoyed an independent constitution and a separate estate, but like many hospitals of the present day was under the control of the religious organization. At first it had a head master, eight brethren and four sisters. From the beginning it was strictly a hospital for the sick and not an almshouse. This is distinctly expressed in the grant of privileges made to it by Edward III. Among the list of its benefactors are to be seen the names of Thomas à Becket, Henry FitzAilwin, the first mayor of London, William Longespée, one of the witnesses of Magna Charta, and King Henry III. The hospital and the priory were separated upon the dissolution of the latter in 1537. During the general religious upheavals under Henry VIII the king acquired possession of the hospital and its revenues, but upon the earnest entreaty of Sir Richard Gresham, Lord Mayor of London, he refounded it by royal charter, and in 1547 granted it another charter, which restored to it the greater part of its revenues. At this time it had 100 beds, a number which has since been increased sevenfold. The "Breviarium Bartholomei," a general treatise on medicine, was the first book to be written upon observations made in the hospital, and its author was John Mirfeld, one of the canons of the priory, living in the latter half of the fourteenth century. The immediate superintendence of the hospital for many years was placed in the hands of Thomas Vicary, sergeant surgeon to Henry VIII, Edward VI, Mary and Elizabeth, and the author of "The Englishman's Treasure," the first work on anatomy printed in the English language. From 1609 to 1643 Harvey, the discoverer of the circulation of the blood, was the physician in charge. Some of his rules in regard to the kind of cases which ought to be admitted are in force to-day. The great fire spared the buildings, but they were nevertheless reconstructed by Gibbs in 1730.

Availing myself of the special invitation of Mr. Bowlby, I was glad to witness within the walls of this famous old hospital so serious an operation as the tying of the innominate artery by Mr. Langton. A feeling

of laudable pride went through me as I passed through the gate where the immortal Harvey entered, and stood in the hall where the gruff old Abernethy used to lecture and where the unequaled anatomist, Richard Owen, wrought and revealed anew the antediluvian world. Above the portal still stands the statue of Henry VIII, fat, straddling and menacing. The hospital consists of a square of solid stone buildings in the midst of one of the busiest and noisiest sections of London. In the center of the square is a large court, by shaded immense old trees, beneath which the students congregate for discussing a case from one hall to another. Upon entering this sedate old courtyard all my pleasant memories of college days were suddenly revived. I could then and there have taken a hand at a tug-of-war, joined in the college cry or debated with the fellows the merits of the last senior oration. I pity the man who has no college reminiscences.

After making a few inquiries I came to the operating room, in which were gathered about a hundred students, twenty professors and lecturers and several nurses and attendants. Antiquity, of course, excuses a great deal, but I was a little disappointed at the smallness of the room, its poor ventilation and not over-cleanly appearance. The students are not supplied with benches but must stand on an ascending series of semi-circular steps, extending from the



BIRD'S-EYE VIEW OF THE BUILDINGS OF THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (ALBANY MEMORIAL), QUEEN'S SQUARE, BLOOMSBURY.

operating table up toward the back of the room, and each supplied with a railing upon which to lean while witnessing the operation. During a long operation it is most exhausting for the men to stand thus crowded closely together, and though it may keep them wakeful it is not conducive toward maintaining the closest attention. The men were marvelously quiet and orderly, and showed in their very manner the seriousness of the operation which they expected to see. Soon the patient was etherized and brought in upon the table. The surgeon, a large man with a Celtic physiognomy and a half-drowsy, tired air, delivered a kind of explanatory introduction, clear, concise and explicit, without any attempt at oratory or rhetoric. Close beside stood Mr. Savory, styled the "orator" of the medical profession of London. Students thronged his lectures upon anatomy, this proving that the dullness of a discourse does not depend upon the subject matter, but upon the speaker. The operation was done rapidly, neatly and successfully.

The clinical practice of St. Bartholomew's to-day comprises a service of some 748 beds. Of these 227 are allotted to medical cases, 353 to surgical, 26 to eye disease, 20 to gynecology and 50 to syphilitics. In 1887 the in-patients numbered some 7,433 and the out-patients 150,828. Confinements attended at home by members of the staff numbered 1,623. The college associated with the Hospital is recognized as one of the best in the world. Its actual beginning is not on record, but students commenced to attend the hospital clinics as early as 1662. Five years later they were assisted in their studies by the formation of a "library for the use of the governors and young university scholars." Percival Pott, whose pupil was the famous John Hunter, was a lecturer in the school. John Abernethy instructed in anatomy, physiology and surgery in the theater erected for him by the governors in 1791. He attracted such large classes, including such students as Benjamin Brodie and William Lawrence, that a still more commodious theater had to be constructed. After many improvements and enlargements the steady growth of the school induced the governors to erect an entire set of new buildings in 1876 upon an enlarged area. In 1843 a college was founded to afford the pupils the moral advantages, together with the convenience of a residence within the walls of the hospital. It has since been enlarged to twice its original size. Within the court is the church of St. Bartholomew-the-Less, which was restored in 1865. The visit of an American physician to London would be incomplete without including a visit to St. Bartholomew's, for it is the most typical of the older London hospitals, as its staff contains the names of some of the most distinguished medical men of the day.

It is a novel experience to pass at once from old, historic St. Bartholomew to the new and magnificent hospital for nervous diseases in Queen's Square, Bloomsbury. This institution, christened The National Hospital for the Paralyzed and Epileptic, entered into existence in the year 1859. For twenty-five years its work was carried on in old houses. The foundation stone of the first part of the new hospital was laid by the Duke of Westminster in 1880. In 1883 the main building was started; it was completed in 1885, opened with royal ceremony, and dedicated as a memorial to the Duke of Albany, who took an active interest in the work but died before its completion. It is the first hospital for the treatment of nervous diseases erected in any part of the Queen's dominions. Its books record the homes of some of its patients as Australia, South Africa, Hindostan, New Grenada, Trinidad, Greece and Sicily. Its world-wide reputation is readily understood from a glance at its medical staff which includes such names as Drs. Ramskill, Radcliffe, Hughlings Jackson, Buzzard, Bastian, Gowers, Ferrier and Messrs. William Adams and Victor Horsley. The annual expenditure approaches £12,000, more than two-thirds of which is made up by voluntary offerings, legacies, endowments and interest-bearing subscriptions. Subscribers have certain privileges for the admission of non-paying patients, but no one is treated gratuitously who is at all able to pay anything. Special wards are provided for middle class patients of straitened means, who contribute 21s. per week. As nervous diseases are so often incurable, it is a happy coincidence that a pension fund should be established in connection with the hospital. A benefaction of £300, for instance, founds a pension of £10 in perpetuity, one of £600 a pension of £20, etc.; and the founders retain the right of appointing the first pensioner, or reserving the nominations during their lives.

A description of the superb architecture of this hospital, its chaste and elegant fittings, its completeness of detail, would consume more space than is now at my disposal. Suffice it to say, that all its appointments are strictly up to date. For example, there are six hydraulic elevators, three for passengers, and as many more for the distribution of food, fuel and ward necessaries; the corridors, staircases, halls and landings are wide, cheery, paved with mosaic, daintily distempered, and endowed with beautifully stained and tinted glass in doors and windows. Every dormitory has a large day room attached to it, supplied with piano, well-stocked library, games, musical boxes and other means of entertainment. The chapel is a beneficent consideration for a hospital in which many patients are obliged to stay many weeks or months. It is a charming room, covered with a handsome glass dome exquisitely tinted, and supplied with large a pipe organ and seating capacity for 120 persons. The chaplain and organist are paid out of a special endowment. The garden, though limited in area, is under a high state of cultivation, and by means of its pavilions and settees give the inmates an opportunity to enjoy the open air. Ever since 1868 a regular course of winter entertainments at fortnightly intervals has been annually organized. These performances have always attained a high standard of excellence. Under the presidency of the Duchess of Teck, the Samaritan Society, administered by a committee of ladies, attempts to provide the more necessitous out-patients with grants of fuel, food, clothing, to pay their fares to and from the hospital, and to send convalescents to the seaside and elsewhere.

There is a clinical amphitheater in the hospital, and here, as well as in the wards and dispensary rooms, many physicians from all parts of the world have availed themselves of this unrivaled field for the study of nervous diseases. It was my privilege, through the kindness of Mr. Adams and Dr. Ferrier to observe the work of this hospital for several weeks and I am grateful to add my testimony to the skill and ability of the staff in imparting knowledge, to the wealth of clinical material here to be seen and to the uniform courtesy shown by the attendants. In 1895 no less than 844 patients were received into the wards of this

special hospital. Of these 51 died while 556 were relieved or cured. Of the total number of fatal cases, 33 per cent. were cases of tumor of the brain, mainly of a malignant nature. Of the cases of epilepsy, 72 per cent. were relieved. The total number of patients upon the hospital book at the close of 1895 was 5,243, of whom 179 were in the wards. The remainder were either out-patients or were waiting for beds. As all forms of nervous diseases, organic as well as functional are admitted to this hospital, and as most of them, for obvious reasons, were major cases, it is easily seen how valuable an opportunity is here presented for the study of these obscure maladies.

Of the other great hospitals of London, mention might be made of Charing Cross, King's College, Brompton, Middlesex, London, St. George's, St. Thomas', Guy's, and Soho Square Hospital for Women, but time and space will not admit of a description of them here. The two I have selected are quite typical, each in its own way. Even these have occupied so much space that I can not now refer, as I had intended doing, to some of the medical societies, their meetings which I have attended, the medical schools, and a few of the medical customs of the private practitioners, differing from our own.

4543 Lake Ave.

DISCUSSION ON ADDRESS OF THE CHAIRMAN, DR. WILLIAM E. QUINE, OF CHICAGO.

In the Section on Practice of Medicine, American Medical Association, Atlanta, Ga., May 5-8, 1896.

[Address appeared in JOURNAL of May 23, page 1012.]

DR. J. T. PRIESTLEY, of Iowa—With regard to the so-called Woodbridge treatment of typhoid fever, I made a report to our State society two weeks ago. For some time I had been impressed with the idea of intestinal antisepsis, and, in fact, got my first impression from Dr. George B. Wood. Dr. Wood, however, made the fatal mistake of blocking up the bowel with opium. Then came Birney Yeo's so-called chlorin treatment, for which he gave me the formula. Under that method I treated thirty-seven cases of typhoid without a single death. I judged at that time, as I do now, that the typhoid which we have been having through Iowa has been of an unusually mild character. Having had a personal knowledge of Dr. Woodbridge's work, I employed his treatment in forty-one cases of typhoid which I reported before the State Society of Iowa. Only two of that number died, and both of them were persons whom I did not see until the second week, and both were alcoholics. That is a much better result than I have ever been able to obtain with any other plan of treatment. I quite agree with those writers who regard the Brandt treatment of typhoid fever as a marked advance, but the inconvenience of applying it in general practice, together with the utter abhorrence for it which some patients experience, led me to try the Woodbridge treatment.

DR. BURNS, Philadelphia—My attention was called to the Woodbridge treatment some two years ago, and being a resident of that portion of Philadelphia which is supplied with water that always, probably, contains typhoid bacteria, and where we are accustomed to seeing more or less of typhoid fever, the idea came to me, suggested by the Woodbridge principle, to use carbolic acid as an antiseptic, in conjunction with glycerin as an eliminative. I regret that I have not kept a full record of the cases treated in that manner, but in a considerable experience I have met with no deaths, and although the temperature had been high, 103 to 104 F., pulse rate 100 to 120, tongue dry, diarrhea, the course of the disease was modified and ended in recovery.

DR. HOBART A. HARE, Philadelphia—Whether we believe in the theory of antisepsis in the treatment of typhoid fever or not, I think we recognize the fact that in those instances in which we combine with this treatment the use of hepatic stimulants, or drugs designed to increase the activity of the liver, we do as much toward modifying the severity of the disease by preventing the absorption of toxic material as we do by producing actual intestinal antisepsis. In a number of diseases which we suppose now to be largely due to a septic condition of the alimentary canal, and in which the systemic symptoms are out of proportion apparently to the local lesions—for instance, the summer diarrhea of infants—I have found that the administration of drugs like podophyllin produces improvement in the condition of the patient in direct proportion to the increased activity of the hepatic gland. I believe that physicians are too apt to consider that the only function of the liver is to pour out bile into the alimentary canal. The result of that function is, of course, that the bile acts as an antiseptic in preventing putrefaction, but we forget that the liver has a very important function to perform aside from its glycogenic function, namely, the function of destroying poisons which are absorbed from the alimentary canal. If the blood vessels leading to the liver are tied off in such a way that materials can be absorbed from the intestine without first passing to the liver, it has been found that the animals become rapidly intoxicated. And if poisons be given to animals from which the liver has been extirpated, or in which the liver has been prevented from acting by mechanical means, it has been found that very much more minute doses of those poisons will produce death than in animals in which the liver has been left intact. Now, if podophyllin, which we have heard of in this antiseptic treatment, does good, it does good, I think, by its influence upon the hepatic gland. The hepatic gland in its turn probably acts just as any large capillary network may do, by destroying toxic material in the circulation. The liver being a particularly large collection of capillaries, has unusual power to destroy vegetable alkaloids, as shown by experiments, and, in a similar way, probably destroys those toxic agents which enter the system from the alimentary canal. Now, my experience with the treatment of typhoid fever is small and the cases which I have seen have been mild ones, the death rate *nil*. I have employed practically no treatment except a little hydrochloric acid to keep the stomach active; clean the tongue, control excessive diarrhea or constipation, or meet any other individual symptom which might arise. But in another disease which I have already mentioned, the summer diarrhea of infants, again and again have I seen this effect of stimulating the liver. In the sanitarium at Red Bank, New Jersey, a large number of cases have been studied, of children brought there while purging a peculiar watery material, of mousy odor, passing rapidly into collapse, and on giving minute doses of podophyllin every hour or every half-hour the passage would be seen to assume a biliary color, and with the first sign of return of hepatic action we were safe in giving a favorable prognosis. I repeat, that where these drugs do good, I believe it is quite as much by increasing the activity of the liver as by any intestinal antisepsis which they may develop.

DR. JOHN A. OUCHTERLONY, Louisville—I was very much interested in the paper, and not at all less so with the first part of it than with the second, but inasmuch as the discussion has turned chiefly upon the latter part I wish to make some remarks upon that. When I began the study of medicine the principal object which we had in view was to support the patient's strength. Very little else was aimed at except to meet complications or symptoms as they arose. But after awhile it seemed to me that was not all that might be done, especially in as much as we find the type of typhoid fever vary exceedingly. It is almost impossible to lay down one mode of treatment of this disease when one epidemic is so unlike another. It is true that during the last few years the epidemics

which we have passed through have been of a milder type than those of fifteen or more years ago, but I have noticed that in those cases in which there was actual constipation or very little diarrhea, the temperature was likely to run much higher than in those in which the diarrhea was moderate, and that pointed rather clearly to the fact that diarrhea is eliminative and therefore conservative, so that I came to regard it as a good plan to help nature by increasing elimination where the bowels were constipated, and even in cases in which they were not constipated. I have been particularly struck by the fact that the less the bowels perform the eliminative function the higher the temperature is apt to run, and that, instead of giving antipyretics for the reduction of the temperature, we may often accomplish that desirable object by making the bowels do their eliminative work and thus remove from the system the fever-exciting poisonous agents. As to intestinal antisepsis, I began giving attention to this a few years ago, and while I must say that I have not had remarkable results, still the plan has certainly worked well. The reason that I have not seen any very great difference between the cases treated and those not treated with antisepsis is probably due to the fact that the epidemics were mild, the cases were not severe, the temperature was not excessively high, and the other leading symptoms were mild in proportion. The sulpho-carbolate of zinc has been the agent which I have chiefly relied upon, and I can not help thinking that hydrochloric acid, which we have been using for so many years and with apparently good results, when given persistently and in full doses must certainly produce some antiseptic influence. I do not look upon it merely as a placebo, but as a remedy of positive usefulness in the treatment of typhoid fever.

DR. KRAUS, Iowa—Since we have heard a little report from our State on the antiseptic treatment of typhoid fever, I would like to state that during the year I have treated seven cases in this manner with two deaths. Never before had I two deaths in one year, while I have treated as many as forty-three successive cases without one death on the general plan mentioned by Professor Hare. The first case which I treated by the Woodbridge plan, as far as I could, was that of a strong young man not an alcoholic, who kept at his work for a week after the beginning of his illness, and then came under my care. I employed the tablets and the capsules, but principally the latter. He had a severe hemorrhage within three or four days after the commencement of the treatment, and although he lived three weeks from this time yet he continued to have hemorrhages off and on until death. Then I had two cases recover after about two weeks sickness. The next case I saw early, carried out the treatment with medicines put up by Parke, Davis & Company, and he died at the end of seven or eight days. I may say that one of my colleagues who treated three cases in this manner lost one of them.

DR. H. A. WEST, Galveston—I consider this subject one of the most important ones which could come up for discussion before this section for the reason that, if the claims made for his treatment by Dr. Woodbridge should be substantiated by the accumulated experience of many observers, he has in my opinion, made one of the greatest discoveries of the age. It has been claimed that by this treatment typhoid fever can be aborted; that it can be cut short in a few days, and that now we should not have a death from this disease, or at any rate very rarely; in other words, that we have a specific for typhoid fever. I repeat that if this can be substantiated, then one of the greatest of all discoveries has been made. As far as I know, no other remedy with any such power has yet been found, and I must confess that I have been extremely skeptical in regard to this one. It seems to me that several things should be taken into consideration. How many specifics have we for infectious diseases? What specific have we for scarlet fever, for cholera, or for other infectious diseases? But I do not propose to be satisfied with excluding this new remedy because I do not believe in the principle of its application. I intend to try it. Thus far I have contented myself with treating cases of typhoid fever largely on the expectant plan, giving antiseptics only so far as they did not interfere with digestion, produce nausea, take away the appetite, or interfere with any of the functions of the body. In view of the explanation which has been offered of this Woodbridge method, that it is eliminative, it would seem there may be something in it, but so far as the claim is made for it—of cutting short the disease and reducing the mortality to so great an extent, I must confess that I am a skeptic. We frequently see cases of typhoid fever which have gone to the second week before entering the hospital or calling a physician, sometimes perforation has first occurred, and I repeat that I am skeptical as to the discovery of a specific for this disease.

DR. LANGTHY, Pennsylvania—I live in a city where it has been said we have more typhoid fever than anywhere else in the United States. I believe in the antiseptic treatment of typhoid fever. I have treated 300 cases, of which I have kept notes, about two-thirds of them with the Woodbridge treatment and about one-third of them with naphthalin used as an antiseptic. The mortality has been 3 per cent. I do not believe the Woodbridge treatment is any better than the naphthalin. About two hundred grains a day of naphthalin will do anything which the Woodbridge treatment will accomplish, and just as effectually. In collapse during typhoid fever the injection of normal salt solution acts better than anything else.

DR. WITHERSPOON, Nashville—So many of the gentlemen who have spoken have favored the use of the Woodbridge method of intestinal antisepsis in typhoid fever that I think it is about time for some of us who do not believe in it to say something. In the first place, I do not believe that the pathology of the disease warrants the cure which it is said to effect. The period of incubation of typhoid fever is really the time when the germ is invading the alimentary tract, and it has found the proper nutriment for its development in the lymphoid structure before we see the case, before the development of symptoms and the diagnosis of the disease. Now, after the germs have penetrated the lymphoid structure, I claim that intestinal antisepsis can not accomplish much, if anything, in the treatment of the case. I do not see how it can. I thoroughly agree with Dr. Hare that, like the use of podophyllin, an increase of secretion is about the only thing there is in the treatment. How we can use a minute quantity of an antiseptic in the treatment of a disease which has already passed into the lymphatics of the body, which is already being eliminated by the urine, which has already involved the spleen and liver, and cut it short, I certainly can not understand, and I do not see how we can promise ourselves anything more by that method than by any other. Another thing seems remarkable to me, and that is that the gentlemen should have seen so many cases of typhoid fever. It is certainly different from my experience. I do not doubt their statistics, but I do doubt the diagnosis. We know well that there are forms of continued fever which simulate very closely typhoid fever and yet which have not the specific germ of that disease, and I would like to know, of those who have spoken, whether in their cases the specific germ was found. Where such remarkable results are obtained apparently from the treatment, it is important to know whether the diagnosis was beyond doubt. I believe the Brandt method is by far the best, and that it has given the best results in the treatment of typhoid fever.

DR. N. R. COLEMAN, Columbus, Ohio—This subject is of such deep interest to all parts of the country that I hope to be excused for taking up a little of your time. The interest is not confined to the medical colleges, for we hear gentlemen from all parts of the United States giving their experience, or their views, on this method of treating typhoid fever. Before expressing my own views I should like to ask Dr. Priestley

whether he treated his forty cases strictly and absolutely on the Woodbridge principle, or did he carry out a mixed treatment?

DR. PRIESTLEY—I treated them according to that plan, to the best of my ability and as strictly as I could. I did not test for the bacillus.

DR. COLEMAN—Did you follow the Woodbridge diet?

DR. PRIESTLEY—No.

DR. COLEMAN—I am an Ohio man and have heard Woodbridge speak. He will tell you that he allows his patients to eat almost as they did before they had typhoid fever. They can eat gross food. He will tell you that he will put the patients on their feet in fifteen days. I have had occasion to say that I do not believe it. When you take one specified kind of treatment and say that it is a certain means, and that it must be adhered to to the letter in every case, I do not believe there is a gentleman present who has the rashness to adopt it, who will in typhoid fever give these intestinal antiseptics and allow their patients to eat gross food from the onset, giving beefsteak and even cabbage, as I heard stated in Ohio, and claiming to get patients up and about their vocation in from nine to fifteen days. It is with such claims that we have to contend, and I may say after carefully studying the histories of their cases and looking over the temperature curve, I have become a doubting Thomas as to their diagnoses. I do not believe their diagnosis is correct, that it is genuine typhoid fever, but rather that the majority of the cases are cases of remittent fever. I do not believe that they have to deal with the typhoid bacillus and the toxins and ptomaines that are generated by that germ. Before giving my limited experience I would like to call your attention to a few things. You are called to a case of true typhoid fever, and the very first thing which may strike your attention is a congested condition of the skin, showing evidently a vaso-motor paresis. Your patient is entering semi-coma. He is carried into the hospital in that condition. I remember that last fall four cases were brought into the hospital in that condition, and they require prompt and determined treatment or they will die. Another case will have backache, general malaise and constipated bowels for a week or longer before you are called. In another the bowels are loose and the greatest trouble you have to contend with throughout the entire disease is to control the bowels. The cases of typhoid fever which give the least trouble are those in which the bowels are more or less constipated. The cases which have frequent action of the bowels are the ones which in my limited experience are most apt to have hemorrhage—a symptom which has killed more patients for me than all other things.

Consider again the idea of the Woodbridge treatment setting the patient on his feet, well, within fifteen days. Before you ever see that patient the germ has already entered the intestinal mucous membrane; it is already at work; the solitary glands and the Peyer's patches are in a state of congestion with enlargement; you may be able to eliminate more or less of the toxins and ptomaines which have been generated, but you can not return those glands to their normal condition in a short period of time. When, therefore, a series of cases is reported with such excellent results, we have a right to doubt the correctness of the diagnosis. In the central part of the United States we meet with many cases in which, without the aid of the microscope, it is difficult to differentiate between typhoid and remittent fever. I meet with such cases and I make use of the microscope. If you find the typhoid germ, you have something to base your diagnosis upon. Otherwise I should have serious doubts. I have employed the Woodbridge method, but in some of the cases I had to discontinue it on account of the frequent action of the bowels, for, as I have already said, where the bowel has been loose I have had more trouble in controlling it than with any other symptom. I have not been able to carry out the Woodbridge treatment in every respect on that account. It is too risky. For two years we have used the bath, in the Hospital, in every case when the temperature went above 102.5 F., and the records show that the mortality has been lower than during previous years. It is an invaluable treatment. In reference to intestinal disinfection, I am a believer in it. Do not understand me that I would not advocate elimination from the intestinal tract, for it is the great sewer of the body. I invariably start my treatment in typhoid with some agent which will produce intestinal elimination. I like calomel, podophyllin, or something of this nature, to start the secretions because I think it is a serious matter to allow a patient to go through a long sickness with the bowels clogged and take the chances of intoxication. So I repeat that alimentary disinfectants are useful, and I like the sulphocarbolate of zinc as well as any. It is a safe agent, and may be carried up to almost any extent without toxic effects. So, with the Brandt method, with proper diet, and with intestinal disinfectants, the results have been satisfactory in a high degree, but I have never been able to cure a case of pure typhoid fever short of two to four weeks.

DR. FENTON B. TURCK, Chicago—The study of typhoid fever can not be carried out by simply enumerating symptoms, and it is impossible to discuss this question on the line of semiology alone. It is most difficult to make a diagnosis by bacteriologic means. It is a most difficult thing to differentiate between the colon bacilli and the so-called typhoid fever bacillus. However, we know something of the method of invasion among microörganisms of the alimentary tract. We know that they pass through the walls. In the Cook County Hospital we make a careful bacteriologic examination in every case of typhoid fever which comes to autopsy, and we find microorganisms in the spleen, in the liver, and various parts of the body. Can you call that a purely intestinal disease? Now with regard to treatment, bacteriologists would be rather loath to expect to disinfect a tube twenty-five feet long with a few grains of any antiseptic. We can not in a small test tube even, produce an aseptic condition with a few grains of any antiseptic. It is impossible, then, in this long intestinal tube to produce it by any of the various antiseptics used. Hence we can not, simply on the basis of antisepsis, reason out a treatment which will distroy the microörganisms, and such therapeutics are theoretical and irrational and should be discarded. If you say you do it empirically, it is all right; but if you do it for antisepsis it is wrong. If you give strong enough poisons to produce an aseptic condition you destroy the cells of the alimentary tract. Therefore it is irrational. Regarding the toxic effects in typhoid fever, I have watched them carefully, and while elimination of the toxins would be symptomatic treatment, yet it would be along the lines of our present knowledge of this disease. Dr. Hare has frequently in his writings called attention to the great importance of elimination through the alimentary tract. The Brandt treatment, as you know, has for its purpose the stimulation of the circulation by which the antitoxin of the blood, the blood within the viscera, is swept into the general circulation. Hence to increase the circulation is to increase elimination. I present these few ideas because time will not permit of giving long clinical experience. Your attention is called to the futility of attempting to disinfect a tube twenty-five feet long, like the intestinal tract, with a few grains of antiseptics.

DR. HOLTON, Vermont—For a hundred years typhoid fever was an annual epidemic in New England. Dr. Nathan Smith had more success in its treatment than any other man in the beginning of this century, and when asked what his treatment was, he said it was milk and water. He gave his patients plenty of water and nourished them on milk and treated symptoms as they arose. During the first fifteen or twenty years of my practice I was located in a vicinity where typhoid fever was an annual epidemic, and I could predict that when new people came into a certain neighborhood they would be sure to have typhoid fever. Now, those cases were typical, having all the symptoms laid down in the books, and the rule was, throughout that section, a mortality of one in forty. The treatment was expectant in those days. We were taught to nourish the patient on milk. When indicated, we gave our good old friend calomel, and when the tongue was brown we gave a little turpentine. During the last twenty years, under the same conditions so far as we know, it has been a rare thing to see an epidemic of typhoid fever in our community. We know that in the history of medicine diseases go by cycles. In the seventeenth century an epidemic of malarial fever went through New England. Fifteen or twenty years ago it again passed along essentially the same track as a hundred years ago, along the coast. We do not have it now. I have talked with physicians who tell me the same thing with regard to typhoid fever. We seldom see a typical case. The cases which we do see usually have symptoms only ten or twelve days. I treat them in the same way as typical cases, stirring up the secretions, for I believe in all diseases there is a great deal in keeping the glandular system of the body active with antiseptics, if you please to so call them, such as thymol or iodin, or whatever seems to be indicated, and patients get well. Now, we know there are what have been called perambulating cases of typhoid fever, and some of those patients continue to walk about until they have a hemorrhage from the bowel and die within twenty minutes from the time they are seen by the doctor. The Peyer's patches had ulcerated and caused hemorrhage from the branches of the mesenteric artery. The point which I wish to make is, that, while we see these changes in the type and in the frequency of typhoid fever for which I am unable to account, but simply note the fact, I am cautious about giving credit to any particular form of treatment for the

good results apparently obtained, when that treatment has no rational basis, for, as the last speaker has said, we can not render twenty-five feet of intestine aseptic with a few small doses of some disinfectant. Attention has already been called to the fact that before we see the patient the bacilli have infected the system.

Dr. J. A. Crook, Tennessee—I have been in the habit of reading this matter on typhoid fever ever since Dr. Woodbridge's first paper was published, but I had not used any of the remedies suggested until the past season, when I had occasion to treat twelve cases. The shortest duration in any case was eight days. The longest fourteen days, the average being eleven days. It may be questioned by some, however, whether I treated a single one of the cases by the Woodbridge method, for at the time I was called I did not think it necessary to risk disturbing the stomach every fifteen minutes and therefore omitted prescription No. 1 and began with No. 2. As soon as the bowel had moved freely I passed to No. 3. Prior to this experience I thought I had success in the treatment of typhoid fever with the Brandt method, with sulphocarbolate of zinc, with salol, carbolic acid, etc., but never did I have results which compared with those of the past season. Cases have been reported from Massachusetts, from Denver, from Washington and elsewhere to the number of more than one hundred, and among all these reports there was but one death where the Woodbridge treatment had been employed, and in that instance it was due to hemorrhage which occurred a short while after eating fried meat, etc., contrary to directions. No other treatment yet discovered has given such success. I may report a case, that of a patient whom I found with a temperature of 102 degrees to 103.5 degrees, bowel distended, tongue coated, three or four passages a day, etc. He said he had been in that condition nearly a week, trying to wear the disease out. Whether it was typhoid or not, it was the same disease which we have been in the habit of treating for three or four weeks and regarding as bad cases of typhoid fever. I put him immediately upon the Woodbridge combination No. 2. Next day he was no better, but the treatment was continued, and on the third morning he said that medicine was helping him. Being asked how he knew, he said his actions were not so offensive. That man, without having heard an expression from me, had formed the conclusion that it was an antiseptic. The following day I gave him No. 3. No quinin, never a fever powder, but on the fifth day the fever began to recede. The eleventh day his temperature became normal, and he had no further trouble except swelling of one limb during convalescence.

Dr. Alonzo Garcelon, Lewiston, Me.—I have been in practice over sixty years and arise to confirm the testimony of my friend Dr. Holton who says that the character of typhoid fever has changed during that time. I commenced the practice of medicine in the year 1839, and immediately after that, even in the State of Maine where we have clear water, pure air and seemingly every condition which nature has conferred upon mankind for health and long life, we had many cases of typhoid fever. But the disease at that time was always characterized by certain definite symptoms which all of you who have had much experience must recognize as belonging to typhoid fever. Among them were sudamina, dry tongue, diarrhea or constipation, tympanites, hemorrhage from the bowels in about one-third of the cases, fever, etc. A very considerable number of those with severe hemorrhage from the bowels recovered. The treatment in those days was very much as suggested by my friend from Vermont, regulation of the secretions, medicines intended to act upon the liver, upon the bowels, for tympanites eucalyptus. Now, the past ten or fifteen years I have not seen perhaps a single case of genuine typhoid fever. In the city in which I live I have seen a number of cases in consultation which were called typhoid fever, but which were simply a typhoid state of the system—not real typhoid fever. There was no sudamina, no rose spots, no tympanites, in short, absence of those symptoms which we regard, when taken collectively, as characteristic of genuine typhoid fever. Now, with regard to the statement that Dr. Woodbridge made, that you young men are guilty of malpractice and ought to be indicted and punished if you allow a typhoid patient to die—it is a very grave assertion. If, as has been asserted, this disease is found to depend upon a microbe which generates so rapidly as to be in excess within a few months of all the plants and shrubs upon the face of the earth, and if gray-haired men who have been in the practice of medicine so many years have not found any efficient treatment of typhoid fever, pray to heaven what has preserved their patients!

Dr. Harden, Tennnessee—When I read Dr. Woodbridge's treatment I sent and got some medicine of Parke, Davis & Co. Although I live in a section of country where during the summer time I see on the average twenty cases of typhoid fever, I may say that since receiving this medicine I have seen only one case in which I felt certain of the diagnosis. There was no eruption, but then I seldom see the eruption in that section of the country. Having become convinced of the diagnosis about the fourth day, I immediately discontinued other treatment and put the patient on the Woodbridge tablet No. 2 every hour for twenty-four hours, then every two hours. The patient had no unpleasant symptoms and the odor of carbonate of guaiacol was very distinct in every movement. One point brought out by my friend from Nashville is worthy of consideration, namely that the bacteria have already entered the system when we see the patient. That is true, but if by antiseptics we can remove the nidus of those germs it seems to me we can do a great deal of good.

Dr. Minor, Ashville—In carrying out the treatment we should in order to test its real value follow the directions given by the author strictly. Now, none of the gentlemen have said anything about the diet. It seems to me that if Dr. Woodbridge favors solid diet and all of these gentlemen have modified the diet while they have only given one or two of these tablets, they can not get up here and say they have carried out his treatment.

Dr. Wm. Osler, Baltimore—I had hoped to hear some remarks upon that part of the chairman's address which referred to the use of animal extracts in various disorders. Whatever we may think with reference to the bone marrow treatment of anemia, or of suprarenal extract treatment of Addison's disease, we must admit that the thyroid extract treatment in the class of diseases characterized by the loss of function of the thyroid gland is a positive specific. We have nothing to compare with it in the whole range of medication except quinin in malaria and iodid of potassium in syphilis. Take, for instance, a case of sporadic cretinism within the first five or ten years, or a case of myxedema in a woman who may have been helpless a long period, or a case produced by a surgeon removing the thyroid gland in toto, you can say positively that within from six weeks to three months there will be such a change in the patient as we are not accustomed to see under any other form of medication. I think, therefore, that the thyroid extract treatment comes upon an entirely different plane. It is used in congenital myxedema, in sporadic cretinism, in spontaneous myxedema, in the cachexia produced by removal of the thyroid, in all of which it acts as a specific. It was not my intention to discuss the subject of typhoid fever, but in view of the remarks of some of the gentlemen I must say that I have seen very few patients die whose bowlels were constipated. If there is any one symptom which I dread it is diarrhea; if there is any one which I care little for it is constipation.

Dr. Paul Paquin, of St. Louis—It is my belief that the treatment of all microbic fevers rests on natural law after all. Whatever remedy we prescribe and whatever measure of treatment we apply, it must eventually act through nature's own forces in bringing about recovery. So with the Woodbridge treatment, which is supposed to act through its germicidal influence. Any remedy which may succeed in exalting nature's own forces in driving out the microbes and their products is certainly in the right line, whether it is calomel, or podophyllin, or whatever may be used. The same views apply to the use of animal extracts in myxedema, etc.

Dr. J. B. Marvin, of Kentucky—I think we should, in the language of the Congressman, ask where we are at? If you do not believe that typhoid fever is a specific infectious disease, then you can treat it empirically, make all sorts of claims about it, and we will not question your pathology nor your therapeutics. I occupy a position in a medical school, and am asked by students my opinion of the Woodbridge treatment, which I have learned about through Dr. Woodbridge's writings and hearing him speak. If I understand him aright, he claims that typhoid fever is a specific infectious disease, and by antiseptics he destroys the germs and cures the patient, so that we can discuss the method from a scientific standpoint. If that is so, we must appeal to bacteriology to get the life history of this germ. As stated by one of the speakers, this germ, after leaving the mucous membrane, invades in a very short time the lymphatic system and other tissues of the body, so that it is not lying on the surface of the intestinal tract where it can be washed off or reached by antiseptics.

When a man gets up and makes the statement that one who loses a case of typhoid fever is responsible, it is saying a good deal. I have practiced medicine a good many years, both private and hospital practice, and I do lose cases of typhoid fever, and I do not hang my head in shame on admitting it. We are all fallible. All that can come from such statements is to cause uneasiness on the part of the laity. Doctors say a child is threatened with typhoid fever, diagnosticate this disease in all

sorts of conditions, and get whatever results they choose. I do not believe a person is ever threatened with typhoid fever. He either has it or does not have it. I have never been ambitious to be enrolled in the list of abortionists.

Another thing: A doctor says he has seen twenty cases, and it appears that he has made his diagnosis very quickly. The first few days, I can not do it, and I question a diagnosis of typhoid fever made at the first visit. Can one, before the characteristic symptoms have appeared, make a diagnosis the first few days and claim to cure typhoid fever in from four to eight days?

Again, we must support these patients. The cause of the disease is bacteria, but can we give to a man antiseptics which will kill these germs? It is a delusion and a snare. I think intestinal antiseptics is a will-o'-the-wisp. It is turning the hand of progress back fifteen or twenty years.

DR. THOMAS, of Pittsburg, Pa.—I do not get up to teach any of these gentlemen how to treat typhoid fever. I have nothing new to offer, neither have I heard anything new offered. But some gentlemen do not believe in abortion. Now, if I had fever and ague, I would not engage the gentlemen to my left. We do abort a fever and ague, and why should we not make an effort to abort typhoid fever?

DR. STEWART, of Pittsburg—In 1890 Dr. —— and I treated fifty-five successive cases of typhoid fever, not one of which ran a course of less than four weeks, and every patient got well. Another doctor near us had thirty-seven cases, all of which got well. I went abroad, came back in 1892, an epidemic of typhoid fever had broken out just before my return. The doctors in Pittsburg told me that out of, I believe, twenty-three cases, nine had died. They thought that, as I had been abroad, I would be able to cure these cases, so I turned my batteries upon them and out of eleven successive cases seven died. They said I ought to have stayed at home.

Now, the facts are just these: You may have twenty-five or thirty cases all run a mild course and get well; then you may have another series of cases which will die in spite of you. The same thing is observed in scarlet fever, and in other diseases. But I believe in treatment. That is all I have to say.

SOCIETY PROCEEDINGS.

The Association of Military Surgeons of the United States.

[Special Correspondence of the JOURNAL.]

The opening meeting of the Sixth Annual Session of the Association of Military Surgeons of the United States was held in the Broad Street Theater, Philadelphia, Pa., Tuesday, 10:30 A.M., May 12, 1896. Beside the officers of the Association and the speakers of the day, Professors John H. Brinton, M.D., William S. Forbes, M.D., and William Thomson, M.D., of the Faculty of Jefferson Medical College, in academic gowns were seated on the stage.

After an overture by the full band of the First Regiment Pa. N. G., and a prayer by Rev. H. A. F. Hoyt, Chaplain of the State Fencibles, Pa. N. G., the President of the Association, Colonel Louis W. Read, Surgeon-General Pa. N. G., formally opened the session, introducing the Hon. D. H. Hastings, Governor of Pennsylvania, who welcomed the Association in the name of the State, paying a generous tribute to the medical department of the National Guard of Pennsylvania, for its share in the splendid organization of that body, whose soldierly bearing has gained for it the designation of "Pennsylvania regulars," and which on all public occasions, when serving outside the State, has attracted equal attention and commendation with the United States regulars—results largely due to its efficient medical staff of which the President of the Association of Military Surgeons of the United States, Surgeon-General Read has been for over twenty years the official head.

MAJOR-GENERAL GEORGE R. SNOWDEN, commanding the National Guard of Pennsylvania, then welcomed the Association in behalf of that body, recalling the pleasant relations, which have always existed between the medical officers and their military associates in the other corps. "One in particular, I remembered," he said, "who I always regretted had bound himself to the medical profession, for if he had not been so excellent a surgeon he would have made a magnificent commanding officer. Many others of them, in addition to ranking high in their profession have distinguished themselves in arms," instancing Warren, Montgomery, Mercer, Crawford and others. General Snowden declared "that civilization was gauged by the regard in which the medical profession is held," and concluded by expressing "the hope that at all times the two branches of the service, the medical and the non-medical, should maintain the same pleasant relations as now exist."

The HON. CHAS. F. WARWICK, Mayor of the city of Philadelphia, followed with the significant promise that "old Sol and I will make it the warmest welcome you have ever had in this city of ours."

BRIGADIER GENERAL THOMAS J. STEWART, Adjutant General of the State, specially represented the Medical Department, extending in behalf of the officers of that department a most cordial welcome, and assuring the Association "of the great joy, pride and honor we of the National Guard feel that you have selected our honored Surgeon-General, Col. Louis W. Read, to be your President. He has held the office of Surgeon-General twenty-two years, and has filled it ably and filled it well. We appreciate him as a man, and are proud of his magnificent record as an officer."

PROF. J. M. DA COSTA, President of the College of Physicians of Philadelphia, next welcomed the Association on the part of the medical profession, dwelling particularly on the fact that "medical men have always been regarded as indispensable to the proper conduct of armies. Esculapius himself served as an army surgeon, and his two sons, the Greek poet tells us, took care of the wounded before Troy. Greatly has the military surgeon ever been esteemed. Paré was handed down from one king of France to another as a precious legacy. The order directing him to the siege of Metz said, 'I send you my beloved Paré, equal to a reinforcement.' Larrey, picked up wounded on the field of Waterloo, was at once released and Napoleon's words in regard to him will pass on through centuries, 'to the most virtuous man I have ever known.' Washington refers in his will to Craig as 'my compatriot in arms, my old and intimate friend.'" Professor Da Costa then referred to the change in the nature of the duties of the medical officers. "At one time, indeed until recent years, he was much more occupied with disease than wounds. The army of Henry V. before the battle of Agincourt was reduced by illness from 59,000 to 10,000. Frederick the Great said that a single epidemic of fever cost him as many lives as seven battles. The havoc by illness alone in the Walcheren campaign is historic. In the Crimean War, the French lost by disease 70,375 as against killed by wounds 20,240; the Russians by disease 600,000, killed by wounds 30,000. During our own Civil War about 104,000 fell in battle or died of wounds, while over 186,000 perished by disease and 24,184 from unknown causes," a total of over 300,000 from causes not attributable to the enemy in arms—these latter amounting, in fact, to only one-third of those inflicted by that invisible, aggressive, powerful foe, whom only the medical officers and their subordinates had to combat. Professor Da Costa further stated that "the first time in modern warfare in which the proportion was changed was in the Franco-Prussian war, and was largely due to advancing knowledge in hygiene, and to the rigid enforcement of its rules. In 1870, out of a total of 40,382, only 12,180 were lost by disease and 28,082 by wounds, and in future campaigns it is the military surgeon and not the military physician who will be most at work, provided, however, the lessons of sanitary experience are heeded, and the commanding general understands that by taking and acting on enlightened advice he can save enough of his army to prevent defeat or to turn indecisive engagements into brilliant victories. Referring to the increased risk of the modern military surgeon, Dr. Da Costa stated that *three hundred and thirty-six* regular and volunteer medical officers were killed in battle or died of wounds, accidents and disease during our Civil War, at Gettysburg alone thirteen medical officers having been wounded—"a proof of their heroism and devotion." During the recent hostilities between China and Japan, the casualties in the medical corps were enormous. The French military attaché reports that 4 per centum of the total killed and wounded among the Chinese officers were doctors. Notwithstanding the risk, there is no fear that medical officers will shrink from its encounter. Was ever Victoria Cross more worthily bestowed than upon Surgeon Captain Whitechurch, who, when the commanding officer was badly wounded during a sortie in the Chitial campaign, a mile and a half from the fort and surrounded by the enemy, proceeded to his rescue and placing him on his shoulders, fought his way back, step by step, every now and then letting him down to head his men, constantly diminishing in numbers, in a charge to drive off the assailants, and whose first action when he reached the fort, though wounded himself, was to dress the wounds of his comrades! "Yet," said Dr. Da Costa, "this is only one more illustration of the gallantry and sense of duty so common among military surgeons. We have long looked upon them, and every day proves how truly, as uniting two professions—as possessing the courage and sense of nerve of the soldier, with the exhalted devotion to duty and the high traditions of the doctor."

The first Vice-President, Medical Director Albert L. Gihon, U. S. Navy, having taken the chair, the President read his annual address, which will be published later in full. General Read referred to "the extensive and ever-extending field of medicine and the intricate and complex problems continually pressing for solution, in conjunction with the increasing individual responsibility of applying the resources at command that, years ago, disposed members of the medical profession to seek each other's counsel and form groups or clubs for the comparison of views and mutual improvement. The great advantages accruing from these commingings prompted more extended social gatherings, until at the present time a large portion of the more progressive members in every civilized community are participating in local, municipal, national and international medical organizations. In the more frequent and familiar comparison of views and cases on all professional subjects in the local societies, closer habits of observation and a wider range of thought are induced, and bigotry and narrow prejudice give way to generous rivalry and personal friendships. In the larger gatherings, the formal preparation of papers and reports impels their authors to a wider range of study and greater mental discipline, while the collision with other minds in discussion develops all the aspects of the subject and enlarges the scope of mental vision by starting new trains of thought and begetting a broader and stronger mental grasp with purer and nobler aims in life." President Read then reviewed the great advances in professional knowledge in recent times, and appropriately dwelt upon its latest development in the Roentgen rays, stating the fact that "in the year 1890 Mr. Jennings, of Philadelphia, had associated himself with Dr. Goodspeed in experiments on spark photography. One evening, the 22d of February, 1890, at the close of work, with the table still littered by plate holders and apparatus, Dr. Goodspeed brought out the Crookes tubes for Mr. Jennings' amusement. Next day that gentleman wrote that he had had a curious failure among his plates—a negative spotted by two disks, but since no one could account for the phenomenon, comparatively uninteresting as it was, the plate was thrown aside and forgotten. Six years later, after the discovery of the Roentgen rays, it was recalled to mind and recovered. A duplicate was prepared under precisely the same circumstances. It was in a lecture on the evening of University Day that Dr. Goodspeed told the story and concluded thus: 'We can claim no merit for the discovery—for no discovery was made. All we ask is that you remember, gentlemen, that six years ago, day for day, the first picture in the world by cathode ray was taken in the physical laboratory of the University of Pennsylvania.' Such is the story of the development of a process entirely simple and of such sequence as to be almost obvious. Yet if its very simplicity had not concealed it, the story would have been cut short years ago, and America instead of Germany would have held the palm."

At the conclusion of the President's address, the Association adjourned until 3 P.M.

Second Session, Tuesday, May 12.

Vice-President Albert L. Gihon, U. S. Navy, called the Association to order at 3 o'clock, in the assembly-room at the Hotel Walton, and the scientific program was at once begun.

The following, in the absence of the authors, were read by title, viz.:

"The Emergency Ration," by Capt. C. E. Woodruff, Assistant Surgeon, U. S. A.; "Experiments with Emergency Rations," by Capt. L. A. LaGarde, Assistant Surgeon, U. S. A.; "Tetanus Resulting from Powder Burns," by Capt. L. A. LaGarde, Assistant Surgeon, U. S. A.; "The Effects of Cannon Firing and Explosion on the Ear," by Dr. Samuel Sexton, New York city, after which, Col. C. H. Alden, Asst. Surgeon-General, U. S. A., read a paper entitled "Instruction of the Hospital Corps, U. S. Army," followed by a paper on "The Hospital Corps," by Major D. A. Kuyk, of the Virginia N. G., and this by one on "The Annual Encampment, and What it Teaches the Surgeon of the National Guard," by Capt. J. J. Erwin, Assistant Surgeon, O. N. G.

Vice-President Gihon then called upon the President, Surgeon-General Read, Pa. N. G., to open discussion on the several papers read, which he did by declaring that Col. Alden's paper had impressed him with a feeling of humiliation, mortification and annoyance, having always congratulated himself that Pennsylvania had the best hospital corps in the United States, his own experience of two wars entitling him to know something about it, and Asst. Surgeon-General Greenleaf, U. S. A., having commended it in an official report.

Major W. H. Egle, Service Brigade Surgeon of the Pa. N. G., and Major Weaver, of the First Brigade of Pa. N. G., described the organization of the Hospital Corps of that State, and Lieut.-Col. Chas. F. Myers, Medical Director of the N. J. N. G., that of New Jersey, which he considers a perfect success. It is an independent body composed of sixty men, commanded by a captain who is a medical officer and a lieutenant who is not.

Major Frank T. Lincoln, of Savannah, Ga., stated that he was extremely surprised to hear Col. Alden's eulogy of the Hospital Corps of the State of Georgia, because he knew there was no such thing in existence. He stated that the Medical Department of the Ga. N. G. was thoroughly well organized, the officers qualified and efficient, being compelled to pass a rigid examination before any one can obtain a commission, but this is not the case with the hospital sergeants and litter-bearers. Owing to the difficulty of inducing good men to enlist for this duty, he had come to the conclusion that the solution of the difficulty will probably be found in the enlistment of intelligent negroes for hospital duty. They make excellent nurses and while there is some reluctance to command them, he thought this was passing away and he was satisfied that in this way a Hospital Corps could be obtained, which could not be excelled anywhere in the United States or in the regular army.

Surgeon-General H. G. Byers of the Wisconsin N. G., spoke of the difficulty he had in getting what was wanted, notwithstanding the utmost importance of having an intelligent and reliable hospital corps in every National Guard organization. It has not been found possible as yet to divorce them from the politicians. The line officers are generally prompt to render aid in case of emergency.

The Vice-President stated that inasmuch as the Association had heard from Col. Alden, it seemed but fitting that Captain Myles Standish should have something to say.

Captain Myles Standish, Assistant-Surgeon M. V. M., stated that the State of Massachusetts mustered in its first man in the Ambulance Corps and enlisted under the statutes of the State in January 1885, which was two years previous to the Army and five or six years previous to New Jersey. The Ambulance Corps is a separate organization, of the same size as a company of infantry and has a captain and first and second lieutenants, all medical officers. The company has fifty-eight members, seven sergeants and ten corporals. There is no talk about hospital steward. They have an armory precisely like the infantry, are paid by the State, are furnished implements and have a drill every week in the year. They come willingly to enlist. The Adjutant-General has said that there is not an organization in the State which does so much to bring credit and appropriations to the National Guard as the Ambulance Corps.

Major F. J. Woods, of the New York N. G., spoke of the efficiency of the Hospital Corps of that State, which had recently been organized upon a separate basis.

Col. Alden closed the discussion and the Association adjourned its session, to reassemble at 10 o'clock the following morning at the University of Pennsylvania.

Third Session, Wednesday, May 13.

The Association was called to order at 10:20 A.M., by President Read in Houston Hall, the use and privileges of which had been tendered by the House Committee at the request of the Faculty. The Vice-Provost of the University explained that this is a unique institution, being in fact a students' Club, with all the appointments of a well organized club and under the exclusive management of the students themselves. Its average attendance during the study season is a thousand members a day.

The session opened with the presentation of reports of the several Standing and Special Committees. The most interesting of these was the report of the committee on the "official Recognition of the Badge of the Association." Major Hoff, U. S. A., the chairman, stated that twenty-eight States had officially recognized the badge, but that similar action in the Army and Navy would require special legislation by Congress.

Surgeon-General Byers of Wisconsin N. G., referred to the possibility of the badge falling into the hands of those not entitled to wear it—but Major Hoff said it was probable the Association would be able to prevent this abuse in the course of time, as had been accomplished in the cases of the Order of the Cincinnati, Military Order of the Loyal Legion of the United States, Officers of the War of 1812, etc.

The scientific program was then begun.

Lieutenant-Colonel A. A. Woodhull, Deputy Surgeon General United States Army, not being present his paper on "The Better Type of Medical Officers" was read by title.

Surgeon-General Nicholas Senn of Illinois National Guard, exhibited a new bullet forceps devised by himself for the extraction of the jacketed bullet, for which the old forceps is

absolutely useless, its sphere of future usefulness being, he feared, limited to the gynecologist. The new instrument is somewhat the shape of a bullet, so as to be used both as a probe and for grasping and extracting the jacketed bullet. When the bullet is located it is grasped by the two blades of the instrument, the tip of which has a very sharp point that it may follow the fine hole of the jacketed bullet. It is equally applicable for the location and extraction of the leaden bullet.

LIEUTENANT H. L. CHASE, Assistant Surgeon Massachusetts V. M., then read a very interesting and elaborate paper upon "Baths, Bathing and Swimming for Soldiers." It was a matter of regret that a companion paper on "The Physiology of Bathing and Swimming," by Lieutenant Henry G. Beyer, Surgeon U. S. Navy, was not received in time to be read in connection with the paper of Lieutenant Chase, which it was intended to supplemet.

SURGEON-GENERAL FORSTER, Mass. V. M., commending the paper, explained that Massachusetts has three camp grounds with bathing and swimming facilities. Captain Jarrett, Assistant Surgeon N. Y. N. G., said that the camp ground at Peekskill, N. Y,, was well supplied with bathing facilities, there being about two hundred baths. After each drill men rush for the baths, and most of the men bathe every day. In his own armory there is a French tiled swimming bath, twenty-five by fifty feet, with eight shower baths, and on the officer's floor private baths, needle baths, etc. Major Egle, of the Pa. N. G., said at the regular encampment at Mt. Gretna, there is an artifical lake of three acres of pure spring water which affords admirable opportunities for bathing, making it, in his opinion, the ideal camp ground of the United States.

The paper entitled "A General Consideration of Athletics; their Value in the Training of Soldiers," by First Lieut. William Allen Brooks, Jr., Assistant Surgeon Mass. V. M., was read by title.

A recess was then taken to allow the members to attend the the clinic of Prof. J. William White in the surgical amphitheatre of the University Hospital and witness a demonstration of the diagnostic uses of Roentgen's rays.

The afternoon session convened at 2:30 P.M., in Houston Hall, and opened with the paper by Lieut. Thomas C. Craig, P. A. Surgeon U. S. Navy on "The Vitality of the Cholera Spirillum in its Relation to Certain Acids."

DR. EZRA H. WILSON, of Brooklyn, the Director of the Hoagland Laboratory, vouched for the accuracy of the experiments which he had witnessed. He stated that the destructive power of sunlight upon germs had been well established. The experiments conclusively established that the cholera spirillum could not survive exposure to direct sunlight more than four hours.

MAJ. CHARLES C. FOSTER, Mass. V. M., then read a paper entitled "Notes by a Medical Officer in the East." "Is There a Necessity for Differences Between the Standards of Physical Efficiency in the Regular Army and the National Guards?" by Lieut.-Col. Charles R. Greenleaf, Deputy Surgeon-General, U. S. A., was read by title, as Major John Van Rensellear Hoff, U. S. A., requested might be done with his own paper, entitled "What is the Most Practicable Plan of Sanitary Organization for the United States Army?"

MAJOR HENRY, U. S. A., the acting Secretary, read a telegram received from Brig.-Gen. J. D. Griffith, Surgeon-General (retired) Mo. N. G., to the effect that the experiments on which his paper on "The Effects of the New Gun in Field Service," was based were not completed, and asking that it might be deferred until the next annual meeting.

"Notes and Comments on the French Field Sanitary Service, and What We may Learn from It," was read by Maj. Valery Havard, Surgeon. U. S. A. "Modern Methods of Sewage Disposal as Applicable to Military Posts," by Maj. A. C. Girard, Surgeon. U. S. A., and "The Illustrated Travois," by Maj. W. C. Shannon, Surgeon, U. S. A., were read by title. "Some Thoughts on Wheeled Vehicles for the Transport of Wounded" was read by Maj. George W. Adair, Surgeon, U. S. A., and "What Standard of Visual Acuity Should Be Required of the Enlisted Men of Our Military Service?" by Capt. J. M. Banister, Assistant Surgeon, U. S. A., was read by title. Com. John C. Wise, Medical Inspector U. S. Navy, then read the paper by Lieut. Charles U. Gravatt, Surgeon U. S. Navy, on "Methods of Caring for Wounded in Field and Hospital of the Chinese and Japanese Armies." At the suggestion of Colonel Alden, U. S. A., the paper entitled "Synopsis of a 'Report on the Medico-Military Arrangements of the Japanese Army in the Field, 1894 and 1895,' made to the Director-General, British Army Medical Department by Sur. Col. W. Taylor, Army Medical Staff, and presented by Col. Dallas Bache, Assitant Surgeon-General, U. S. A.," was read by title.

MAJOR L. C. CARR, Surgeon Ohio N. G., called the attention of the Association to a litter which Maj. W. F. de Neidman, Surgeon Kan. N. G., desired to exhibit to the Association, a description of which was read by Lieut. H. A. Arnold, Pa. N. G. On motion of Major Hoff, U. S. A., the thanks of the Association were tendered to Major de Neidman for his courtesy in presenting his litter.

In response to the call of President Read, the delegations from the several States and Services represented named the following members of the Committee on Nominations:

California, Major W. D. McCarthy, of San Francisco.
Connecticut, Lieut.-Colonel L. B. Aling, of Norwich.
District of Columbia, Major G. B. Henderson, of Washington.
Georgia, Major F. T. Lincoln, of Savannah.
Illinois, Major Sullivan, of Chicago.
Iowa, Brig.-Gen. J. T. Priestley, of Des Moines.
Maine, Brig.-Gen. F. C. Thayer, of Waterville.
Massachusetts, Captain M. Standish, of Boston.
Michigan, Lieut.-Col. C. M. Woodward, of Tecumseh.
Minnesota, Brig.-Gen. J. F. Fulton, of St. Paul.
New Hampshire, Brig.-Gen. George Cook, of Concord.
New Jersey, Lieut.-Col. C. F. W. Myers, of Paterson.
New York, Capt. A. R. Jarrett, of Brooklyn.
Ohio, Capt. J. J. Erwin, of Cleveland.
Pennsylvania, Major J. K. Weaver, of Norristown.
Rhode Island, Lieut.-Col. C. H. French, of Pawtucket.
Virginia, Major D. A. Kuyk, of Richmond,
Wisconsin, Major T. W. Evans, of Madison.
U. S. Army, Col. C. H. Alden, of Washington.
U. S. Navy, Medical Inspector, J. C. Wise, of Washington.

FIFTH SESSION, THURSDAY, MAY 14.

The Association was called to order by President Read at 9:15 A.M. in the Union League Building.

Reports of Committees were deferred and the scientific program taken up. "Problems in Medical Administration, with Solutions; accompanied by suggestions as to the Application of this Method to the Instruction of the Medical Officers of the National Guard," was presented by Colonel Dallas Bache, Assistant Surgeon-General, U. S. A. "The Epidemiological Features of the Late Epidemics of Plague in China and Cholera in Japan," by Lieut. W. F. Arnold, P. A. Surgeon U. S. Navy. "Recent Advance in Anthropology Applied to the Physical Examination of Recruits," by Major P. F. Harvey, Surgeon U. S. A. "Outlines of the Sanitary Organization of the Army of Denmark," by Major John Van Rensselaer, Surgeon, U. S. A., were read by title. Commander J. C. Wise, Medical Inspector U. S. Navy read a paper on "Coöperation in Public Sanitation," and Major Paul R. Brown, Surgeon U. S. Army, a paper on "Modern Methods of Anthropometric Identification, so far as the U. S. Soldier is Concerned," advocating the Bertillon system, and eliciting considerable discussion among the officers of the Army as to the relative merits of the French system and that in vogue in the U. S. Army. Col. Alden described the latter in detail and claimed that the modifications devised by Col. Greenleaf and Major Smart, U. S. A., were all that were necessary. Since its operation was begun in July, 1891, "repeaters" have practically abandoned their game. About thirty-six thousand cards have been filed away—among them 4,000 cards of deserters and dishonorably discharged men.

MAJOR HARVEY, U. S. A., stated that while identification in the regular Army was based largely on accidental marks, the system of Bertillon deals more particularly with the congenital formation of the individual, and as no two men can possibly be precisely alike in the length of their bones and the configuration of their features, the system proposed by the French scientist, while more elaborate and difficult of execution, is an advance upon the present practice. He said that the paper, which he had read by title this morning, was in a measure supplementary to this system, looking to the prevention of enlistment of undesirable men by a study and interpretation of the marks of degeneracy indicating moral defects and criminal tendencies in the individual.

CAPTAIN MYLES STANDISH, Mass. V. M., thought that as the French system was associated with criminals, it would be difficult or impossible to adopt it in this country.

CAPTAIN JARRETT, N. Y. N. G., was also of opinion that in his State men would feel it an indignity to be thus measured and inspected.

MAJOR HOFF, U. S. A., inquired of Col. Alden if there had been any congestion of cards in the office of the Surgeon-General, and of Major Brown, whether the French system requires more or less time than the Army method.

To the first question Col. Alden replied that the cards were overhauled and as men outgrew the age of enlistment were

eliminated, and to the second, Major Brown claimed that he can examine a man thoroughly and make all the classifications and measurements in ten minutes, which he could not do by the other method.

MAJOR VALERY HAVARD, U. S. A., stated that his own experience with the Army system had not been satisfactory. Some men were referred to him for identification and he found it impossible to make sure that these men were originally enlisted and after awhile they volunteered to acknowledge that they had not been. Had they insisted on the contrary it would have been impossible for a jury to have convicted them on these cards. So far as the indignity and humiliation are concerned, he thought when a man is stripped and his marks and defects noted, he has been subjected to as much indignity as he can be. Therefore he preferred the most scientific system based on anatomic data.

MAJOR FOSTER, M. V. M., spoke of the necessity of physical examinations to preserve the efficiency of the regiments of the N. G.

MAJOR WEAVER, Pa. N. G., stated that Pennsylvania examines all recruits for her National Guard according to the Army plan.

COLONEL HENRY, N. Y. N. G., said that in face of the persistent opposition of the line at the outset they had succeeded in enforcing a modified system of examination in New York, and that commanding officers have now become convinced of the necessity for such examination and encourage the medical officers in insisting upon it.

MAJOR VALERY HAVARD, U. S. A., exhibited a litter on behalf of Frederick Remington, which belongs to the bicycle wheel class.

MAJOR D. A. APPEL, U. S. A., exhibited his improved litter-sling.

The Nominating Committee through its Chairman, General Cook, N. H. N. G., reported as officers for the ensuing year:

For President: Commodore Albert L. Gihon, Medical Director U. S. Navy (retired).

For First Vice-President: Brigadier General Edward J. Forster (since deceased), Surgeon General Mass. V. M.

For Second Vice-President: Major John Van Renssellear Hoff, Surgeon U. S. Army.

For Secretary: Major Herman Burgin, Surgeon Pa. N. G.

For Treasurer: Captain James J. Erwin, Surgeon Ohio N. G.

For Editor: Lieutenant W. Lincoln Chase, Assistant Surgeon M. V. M.

Columbus, Ohio, as the place of meeting in 1897.

LIEUTENANT CHASE having declined the editorship on the score of pressing occupation, Major Charles C. Foster, Surgeon M. V. M., was elected to the office of Editor.

A vote of thanks was tendered Major J. Wilks O'Neill, Pa. N. G., Chairman and his associates on the Local Committee of Arrangements for the beautiful flag which they had had made and presented to the Association, and which on motion of General Cook, N. H. N. G., was adopted as the official flag of the Assosiation, to be displayed at each annual place of meeting. The flag is of white ground bordered with green, displaying in its center the distinctive device of the Association—the Geneva Cross, American Shield and the motto, "*Omnia pro Patria Caritate.*" The unfurling of the flag over the headquarters of the Association at the Hotel Walton on Tuesday morning was made the occasion of a pretty ceremonial, a military band of the Pa. N. G. playing the American, followed by the Swiss national airs; as the stops were broken and the flag unfurled the members greeted it with hearty cheers, and it continued to float from the tower of the hotel during the entire meeting.

At noon a recess was taken to attend a clinic at Jefferson Medical College to witness operations by Surgeon General Senn and Prof. W. W. Keen.

SIXTH SESSION, THURSDAY, MAY 14.

The final session was called to order by President Read at 3:30 P. M., at the Hall of the Union League, and the reading of papers resumed. "The Use of Kola for Military Purposes by Practical Experience," by Col. G. H. Penrose, Surgeon-General Utah N. G. "A Plea for Earlier and More Permanent Treatment of the Wounded on or near the Battlefield, by Col. W. H. Forwood, Deputy Surgeon-General, U. S. A., and "The Medical and Surgical Equipment of a XVth Century Military Expedition," by Lieut. H. R. Stiles, Assistant Surgeon, U S. A., were read by title. "The Treatment of Sick and Injured Civilians at the Summer Camps," by Lieut. H. A. Arnold, Assistant Surgeon Pa. N. G., and "Methods of Instruction in First Aid," by Capt. J. E. Pilcher, Assistant Surgeon, U. S. A., were read by their authors. "A New Apparatus for Maintaining Apposition of Bones After Resection, or in Fractures with a Tendency to Displacement," by Col. C. Parkhill, Surgeon-General, Colo. N. G., and "The Medical Department of the National Guard of Pa." by Maj. Edward Martin, Surgeon Third Regiment Pa. N. G., were read by title. A paper on "Asbestos Surgical Field Dressings," was read by Maj. D. M. Appel, Surgeon, U. S. A., who exhibited a complete outfit of such dressings, and the lengthy and interesting program was concluded by the exhibition and description of a new centrifuge by First Lieut. Robert P. Robins, Assistant Surgeon Pa. N. G.

The President elect then announced his committee appointments for the ensuing year, and the Association by resolution extended its heartfelt thanks to its retiring President, Surgeon-General Read, for his prompt and faithful attendance, his impartial rulings and his unfailing courtesy as presiding officer. Three times three cheers and a tiger were given for President Read, who replied happily in acknowledgement, and on motion, declared the meeting adjourned *sine die*, thus terminating the most successful meeting of the Association since its organization. Its roll of membership comprises 386 active members, 27 associates, 25 honorary and 22 foreign corresponding members. The active members represent the National Services and the National Guard and Volunteer Militia of forty-five States and territories, Arkansas, North Dakota, Oklahoma and South Carolina alone not being represented.

The lamentable death of the newly elected first Vice-President, Brigadier-General Edward J. Forster, the Surgeon-General of the State of Massachusetts within a few hours after the adjournment, was the only unfortunate occurrence connected with this meeting. Sitting on the salon deck of the Sound steamer for Fall River, Mass., while at her dock in New York, awaiting her departure, and conversing with his friend and fellow traveler, Col. Robert A. Blood, Surgeon M. V. M., he suddenly fell forward from his chair and quickly died from apoplexy. General Forster was one of the most zealous and energetic members of the Association, and his loss will be felt especially in the Executive Committee, where his opinions and counsels were greatly valued. The preceding report shows how often he was heard in the discussions at the general sessions.

SELECTIONS.

Spontaneous Healing of Laryngeal Ulceration in Pulmonary Tuberculosis.—According to the *British Medical Journal*, Dr. K. Clar has reported in the *Wiener klinische Wochenschrift* the case of a man who in 1884, at the age of 31, came to Gleichenberg with cavernous signs at the right pulmonary apex and catarrhal signs at the left apex. There was ulceration of the posterior wall of the larynx and of both vocal cords. At first iodoform insufflations were made use of, but owing to the obvious tendency toward spontaneous healing this was discontinued, and no local manipulations were thought necessary. Inhalation of the finely pulverized muriated alkaline water of Gleichenberg was employed, with much milk in the diet and mild hydrotherapeutic treatment. In August, 1886, on examination of the larynx it was found that cicatrization of the ulcers had taken place, but their position could still be easily made out. The ulceration on the posterior wall of the larynx had evidently been what Stork terms a "fissure" and it would be wrong to call it a tubercular ulcer. Infection of the ulcer with bacilli from the sputum might easily have taken place; if, however, it did take place it must have healed up again. In the following years the vocal cords gradually resumed their normal pale appearance, and in September, 1895, one could hardly distinguish anything abnormal in the larynx. The physical signs in the lungs have remained much the same, but during last year there was fewer and temporary increase in the catarrhal signs on the left side, which, however, improved during residence at the health resort.

Congenital Hypertrophy of the Liver.—An article on this subject was read at the Medical Congress at Rome last October, by the author of "Morphology of the Human Body," Professor De Giovanni. It was a plea for the value and importance of clinical observations and experience, when conducted on morphologic principles. He described several apparently most diverse

cases of ascites, cirrhosis of the liver, etc., which by his morphologic method he diagnosed as congenital hypertrophy of the liver and its consequent predisposition to morbid conditions. Treatment was in most cases simply a mild laxative and diuretic, with a milk diet and local treatment of complications. In one case fifteen liters of fluid were removed from the abdomen which had been so distended that it would not contract, and a large ellipse-shaped piece had to be taken out of it in front to reduce the size and restore circulation. Recoveries were permanent, as patients persisted in careful diet which he warned them was indispensable in the case of their predisposition.—*Wiener klin. Rundschau*, March 8 and 15.

Ulcerative Endocarditis due to the Gonococcus.—Drs. Thayer and Blumer report in the *Archives de Méd. Exper. et d'Anat. Path.*, a case of ulcerative endocarditis associated with the gonococcus. The case was that of a woman who presented the clinical signs of acute endocarditis, but no evidence of gonorrhea. Gonococci were cultivated from the blood during life by mixing about two cubic centimeters of the blood from the median vein with melted agar agar. The blood was withdrawn by means of a sterilized hypodermic syringe. The mixture of blood and agar-agar forms an excellent culture medium for the gonococcus as has been shown by Wertheim. There seems no reason to doubt the identity of the organism thus isolated, for it showed those characteristics of morphology, culture, and reaction toward Gram's method of staining which serve to distinguish the gonococcus from other pyogenic cocci. The autopsy showed an ulcerative endocarditis and in the heart lesions large numbers of cocci were found, which, by their form and lack of staining by Gram's method, as well as their inability to grow on the ordinary culture media, must be accepted as gonococci. It is to be regretted, however, that the authors did not isolate the organism on suitable culture media at the autopsy and thus make complete the demonstration of its identity. The infection-atrium in this case seems to have been the genital tract, for at the autopsy gonococci were found in the uterine cavity and in the vagina, but without any marked signs of inflammation of these parts.

Renal Changes in Diphtheria.—The *British Medical Journal* reports that Dr. Reiche says that in eighty-five fatal cases of diphtheria before the serum treatment he always found more or less marked renal changes; seventy-five of the cases occurred in children under 10 years of age. There were no characteristic naked-eye appearances. Microscopic changes existed chiefly in the parenchyma, in the interstitial tissue and in the glomeruli. The former were present in but slight degree. There was cloudy swelling, and sometimes fatty changes in the renal cells. A crumbling away of the central part of the cells with consequent filling of the tubules with débris was noted. Only the remains of the cells could be seen in some places. In a very small number of cases a coagulation necrosis had led to the destruction of the epithelium in places, but necrosis of single cells was much more frequent. In forty-four cases there was inflammatory proliferation in the interstitial tissue, and this was marked in seven cases. In some of the cases this was perivascular in distribution. The renal cortex was more affected than the medulla. The glomeruli were always involved. There was exudation into the capsular space, and alterations in the capillary loop as well as in the capsular epithelium. The exudation contained cellular remains, and occasionally red blood cells. Sometimes portions of the capillary tuft were stripped of epithelium, and the cells of the capsule were occasionally swollen. Casts were seen in two-thirds of the cases, mostly hyalin, rarely granular, with cellular débris; they were found chiefly in the straight tubes, etc. In three cases there were interstitial hemorrhages. The vascular distension was variable. Thus, along with degenerative lesions, there were others of an inflammatory and productive character. These lesions are produced by the diphtheria toxins. Slight changes were also found in the liver, and sometimes in the pancreas. The author observes that the changes in all three organs were more common in cases of asphyxia.

Differential Diagnosis of Ileus.—Naunyn has an able study of this subject in the new periodical with the picturesque title: "*Communications from the Borderland Between Medicine and Surgery*" (*Mittheilungen aus den Grenzbieten der Med. und Chir.*), page 38. In regard to operating, he reviews 288 cases, and states that the best results are secured if the operation is performed in one to two days after the commencement of the ileus, as the percentage of recoveries falls from 70 to 34 per cent. if the operation is delayed to the third day. Cases of ileus with hernia afford exceptionally favorable results. Of course he does not refer to strangulated hernia, but to ileus resulting from stagnation, adherences and loops in the neighborhood of the hernial sac. The reason for this surprising fact is that the surgeon knows then exactly where to operate, which emphasizes once more the great value of correct local diagnosis. In differentiating ileus from simple obstruction, he notes that in the latter, gas can pass, and tympanites is absent. Vomiting and severe general distress are absent in hysterical tympanites also. Visible peristaltic action decides in favor of ileus, especially in a volvulus. It is very difficult to decide between ileus and acute primary peritonitis. Visible or palpable peristalsis favors the former, while the latter is suggested by commencing fever, continual vomiting and discovery of some etiologic points in the stomach complications, worm processes, etc. Indican in the urine has no diagnostic value. Naunyn describes in detail the important distinctions between acute and chronic ileus, and shows that peristaltic action, which is almost the only means of differentiating them, can also occur in a volvulus in acute occlusion. The exact location of the occlusion can only be determined when it is in the duodenum or upper jejunum, or in the descending colon. It is important to decide whether there is strangulation with the ileus, as an operation becomes imperative in that case; the diagnosis is founded on the rapid septic collapse, and a solid distended volvulus. A free serous hemorrhagic discharge seems to be a frequent accompaniment.—*Centralblatt für Chirurgie*, May 2.

Influence of Static Electricity on the Tension and Course of the Pulse.—Dignat has been making a careful study of the pulse of sixty-two patients before and after the electric bath, and notes a marked difference: 1, noticeable diminution of the amplitude of the pulsations after the bath; 2, greater regularity of pulsations after than before; 3, greater frequency of pulsations after franklinization; 4, decrease and sometimes total disappearance of dicrotism and polycrotism. He was very careful to investigate the pulse always on the same side, with the patient always in the same position, the arm resting relaxed on a support, with a cylindric roll (always the same), held lightly in the fingers. He also verified before he began, each time, with the dynamometer of his sphygmograph (Dudgeon's) the exact pressure of the spring on the artery, and if there was any change from last time registered, he altered the spring until it showed the same figure as before.—*Journal de Méd. de Paris*, January 19.

Etiology of Leprosy.—According to the *Press and Circular*, Professor Kaposi has recently delivered some exceptionally interesting clinical lectures on leprosy, its varied manifestations and the diverse interpretations that have been placed upon its pathologic developments. For a long time the disease was conclusively shown to be hereditary, which was satisfactorily admitted from the histories obtained of families residing in districts where the genealogy of different stocks could be traced in the registers of different parishes. Danielsen and Boeck have spent much time in endeavoring to disprove or establish this doctrine. The latter followed healthy children, who had been born of leprous parents, to America, who after a time had settled on that continent, and became afflicted with the disease. There may be a certain amount of error in connection with this question of heredity, as many of the families had intermarried and resided in the same neighborhood for generations, thus fixing the transmission temporarily, as we find it disappearing in many districts without any apparent cause, which would not occur if heredity was the base of transmission.

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INFORMATION WANTED.

It would greatly facilitate the prompt delivery of the JOURNAL to those members of the ASSOCIATION living in large cities, if they would kindly furnish this office with their street address in those cases where it is omitted from the wrapper of their JOURNAL, as we have been notified by the postmasters of the larger cities that second-class mail matter not having street address, would be placed in the general delivery to await call.

SATURDAY, MAY 30, 1896.

MNEMONICS OF ANATOMY.

To the student commencing the study of anatomy the number and variety of details he is required to memorize is generally appalling. Not infrequently he abandons the effort in despair; sometimes he contrives to retain a certain proportion of these details by the use of more or less appropriate "catches" or mnemonics. This use of *memoria technica* dates back to the early classic writers and nearly every one, even at the present day, has occasion to use some form of them—at least that familiar one concerning the number of days in the months. But for anatomy few are in use in this country and the ones generally heard are that about "vexatious Timothy" and a suggestive one relating to the position of the bones in the carpus.

In the old country, on the contrary, and especially in France, every medical school has its series of "catches" and some of them are thought to be of sufficient importance to be introduced into the standard treatises on anatomy.

Something more than two centuries ago BIMET published a poetic osteology[1] which seems the first effort to apply the mnemonic method to the bones. The following is a specimen quatrain:

L' occipital ressemble au devant d'un navire;
Il paroit le plus grand et plus épais de tous,
Afin de résister plus fortement aux coups,
Qui sans cette épaisseur luy pourroit beaucoup nuire.

[1] Quatrains anatomiques des os et des muscles du corps humain, par Claude Bimet, 1664.

There are 339 of these quatrains in the osteology alone; that part relating to the muscles is much shorter. BIMET had been preceded in myology by QUARRE, who published his work,[2] a quarto volume, in 1638. Some years later than BIMET's work appeared another osteology in verse by ABEILLE.[3] These verses are of irregular lengths and we find, from the one selected on the use of the trephine, that surgeons then as now were chary of applying this instrument over the sutures—as witness:

SUR LE TRÉPAN.

Si tu veux sur le crâne en vray practicien
Appliquer le trépan pour guérir les fractures
Prens d' abord le conseil d'un bon chirurgien,
Évite surtout les sutures.
Fais un bon pronostic et d'ailleurs ne crains rien.

Another work of this character was published in Italian.[4] The latest attempt to combine poetry with osteology is by a French author, E. ARTANCE.[5] This writer explains in his preface that he composed the work for his own use and that he offers the first part to his "condisciples," hoping it will be beneficial. "If it is received favorably," he says, "I will publish the other parts; if not, I will keep them for myself." Evidently the work was not received favorably, for only the first part was published, including the description of the bones, joints, teeth and organs of sense. The first few lines of the twelfth verse—on the sphenoid—will give an idea of the whole:

Cet os dont la figure est irrégulière
Ressemble en quelque sort à l'oiseau mammifère
Par dix ou douze points ossifiés d' abord
Il offre à d'autres os six faces, double bord;
Une face inférieure ou dite gutturale, etc.

CATTELL, in a recent article entitled "Some Anatomical Mnemonics,"[6] points out the utility of the system and gives some of the "catches" usually employed, in addition to a few original ones. But the most important work on this subject which has yet appeared is that by WITKOWSKI,[7] the inventor of the well-known iconoclastic manikins. This is in two volumes of 960 pages, with 955 cuts or illustrations, and covers the entire subject of anatomy, with some hundred pages devoted to physiology and the like. Some of the illustrations are quite ingenious, as, for instance, the one representing the *extensores radii* as two malefactors between a large and small gendarme (the long and short supinators). Others, including one on page 72 of Vol. II, are decidedly Gallic. It is characteristic of medical students that several of the "catches" that are in use in the French schools, especially that of Lyons, verge or actually trench on the domain of pornography.

More use might profitably be made of mnemonics

[2] Myographia heroico versu explicata, auctore Guillelmo Quarre.
[3] Nouvelle histoire des os selon les anciens et les modernes enrichie de vers, 1685.
[4] L'anatomico in Parnaso o sia compendio della parti del corpo umano, espoto in versi da Lucio-Francesco Anderlini, 1739.
[5] Abrégé d' anatomie descriptive en vers français, 1846.
[6] International Medical Magazine, p. 731, 1894.
[7] Memento d'Anatomie: Petits moyens mnemoniques recueillis ou imagines par le Dr. G. J. Witkowski. Paris, 1893-4

in anatomy and their introduction into text-books would, undoubtedly, prove helpful to the student. Many teachers decry their use, but any one who instantly recalls the colors of the spectrum by repeating the familiar *vibgyor* will need no further argument to convince him of their usefulness.

A STUDY OF THE OPERATIVE TREATMENT FOR LOSS OF NERVE SUBSTANCE IN PERIPHERAL NERVES.

The far-reaching pathologic changes which result from loss of continuity in the peripheral nerves, and the relative frequency of such injuries, have for many years been the object of much study and research.

Clinical and experimental observations have long ago shown that the function of a severed nerve can be restored if the divided ends are brought into close apposition by means of a suture or otherwise, and that the outlook for a successful result is better the sooner after the injury approximation of the ends is secured. Return of function is possible even without careful suturing of the divided ends, as witness, for instance, the return of a neuralgia after resection of a nerve. The general rule remains, however, that severed nerves must be accurately sutured. Usually injuries to nerves are of such a nature that not much nerve substance is lost, the ends being readily united, but it occasionally happens that in lacerated wounds several inches of a nerve may be destroyed, that in the removal of tumors of nerves the resected ends may be far apart, that after extensive inflammation and suppuration following nerve injuries the stumps may become so imbedded in cicatricial tissue that it may be exceedingly difficult, if not impossible, to find the ends; in such cases resort to simple suture is out of the question, and a large number of methods have been suggested from time to time to obviate the difficulties connected with restoring the lost substance. Considerable experimental work dealing with these problems has been done, the most recent as well as thorough research in this direction being that of HUBER,[1] of Ann Arbor, who tried experimentally the various methods suggested for restoring lost nerve substance with a view to establishing their comparative value. HUBER'S article is divided into three parts: 1, a review of the literature; 2, the author's experiments and physiologic observations; 3, the result of the microscopic examinations.

The various methods which have been employed in the treatment of nerve injuries with loss of nerve substance may be grouped under the following heads:

a. Nerve stretching (*Schäller*).

b. Implantation of a nerve segment removed from a recently amputated limb, or from a lower animal.

c. Tubular sutures (*Vanlair*).

d. Union of ends with catgut threads, or a bundle of catgut threads (suture à distance, *Assaky*).

e. Nerve flap from the central stump, or a flap from both central and peripheral stumps (autoplasie nerveuse à lambeaux, *Létiévant*).

f. Grafting of the central end of the peripheral stump of a divided nerve to an accompanying nerve trunk (greffé nerveuse, *Létiévant*).

g. Cross suturing the long central and peripheral stump in cases where two accompanying nerves are cut obliquely, and grafting the central short stump to central long one, and peripheral short stump to peripheral long one (*Létiévant, Tillmanns*).

h. Resecting the bone or bones in the extremity and suturing the nerve.

These various procedures have all been tried in practical surgery; in most cases the feasibility of the method was first demonstrated by experiments upon animals. A complete tabulation of the surgical cases in which a defect in a peripheral nerve was treated by operative means has not been made. HUBER collects twenty-three cases and the following table gives the general summary of the reported cases. It is almost unnecessary to add that it is an exceedingly difficult matter to give a correct summary of such complicated and often imperfectly observed or described phenomena as are dealt with in these cases.

TABLE GIVING SUMMARY OF REPORTED CASES.

Operation.	Nerve Operated Upon.	Operation.	No. of Cases Reported.	Successful.	Improved.	Failures.	No. Cases Observed 2 mos. or longer.	Observed less than 2 mos.	Incomplete Report as to Result.	Remarks.
Implantation.	Ulnar	Primary	3	.	2	.	.	.	2	Implanted segment necrosed once.
		Secondary	4	.	.	3	1	.	.	
	Median	Primary	1	.	1	.	.	.	.	
		Secondary	3	.	.	1	1	1	.	
	Ulnar and m'd'n	Primary	2	1	.	.	2	.	.	
		Secondary	1	.	1	.	.	.	.	
	Radial	Primary	3	.	.	2	.	1	.	
		Secondary	3	1	.	.	1	.	1	Report gives condition 10 days after operation.
	Sciatic	Primary	1	1	.	.	.	.	.	
		Secondary	.	.	.	.	.	.	.	
	Total		24	3	4	6	4	1	6	
Tubular suture	Ulnar and median	Secondary	1	.	1	.	1	.	.	
Suture à distance	Radial	"	1	1	.	.	.	.	.	
Létiévant's flap operation	Ulnar and median	"	2	1	.	.	2	.	.	
Nerve grafting	Medial	Primary	1	.	.	1	1	.	.	
	Ulnar	"	1	1	.	.	.	.	.	
Resection of bone to extent of admitting nerve suture.	Ulnar and median	Secondary	1	1	.	.	.	.	.	
	Musculo spiral	"	1	.	.	.	1	.	.	
	An arm nerve	"	1	.	.	.	.	.	.	
Grand Total			35	7	10	5	18	4	6	

It will be seen that the operation for nerve implan-

[1] Journal of Morphology, Vol. XI, No. 3, 1895.

tation has been performed fourteen times, eight times as a primary and six as a secondary operation. Of this number three are reported as successful, seven as improved and four as failures. In one of the cases at least, namely, ATKINSON'S, the report covers a period of but sixteen days after the operation, at which time sensation is said to have become fully reëstablished. HOWELL and HUBER show, however, that in man sensation does not return to the peripheral part of a divided nerve until three months after suturing. Hence there can be no doubt but that in ATKINSON'S case the sensory impulses were carried along one of the other cutaneous nerves distributed over the extremity. All experiments bearing on this problem show that the implanted portions always degenerate.

HUBER'S experiments were made on dogs. With but few exceptions the ulnar nerve was used. When implantation was made a segment was taken from the sciatic of a cat. The length of the piece excised varied from 4 to 8 cm. The details employed in experiments with other methods were simple and uncomplicated. In all cases asepsis and careful suturing were secured. The irritability of the nerves was examined by means of induction shocks from a DU BOIS REYMOND coil under such conditions that the results obtained admit of comparison. The final functional results obtained are shown in the folowing table:

Operation.	Number.	No. where 120 days or more intervened between operation and examination.	Cases observed 120 days or longer.			Failures.
			No. in which regeneration was complete.	No. in which regeneration extended to middle of forearm and to muscular branch of flexor carp. uln.	No. in which regeneration extended to just below peripheral wound.	
Nerve implantation . . .	26	10	5	4	. . . . .	1
Bone tube implantation .	8	4	. . . . .	1 (sec. impl.)	2	1
Implantation of catgut threads . . .	7	3	1	1	. . . . .	1
Létiévant's flap operat'n	7	2	. . . . .	. . . . .	. . . . .	2
Létiévant's grafting. . .	1	1	. . . . .	. . . . .	. . . . .	1
Tillmanns cross suturing and grafting. . .	1	1	. . . . .	. . . . .	. . . . .	1

A number of animals were sacrificed from time to time in order to study the changes that occurred in the nerves experimented upon. It was found that the best method for demonstrating the developing axis cylinder is to harden in MUELLER'S fluid and to stain with STROEBE'S anilin blue-safranin solutions. HUBER shows that after primary implantation of a nerve segment between the resected ends of a peripheral nerve, the entire peripheral stump and about three-quarters cm. of the central stump degenerates; the myelin and the axis cylinders of the implanted piece are absorbed within ten days after the operation. Regeneration begins in the central stump and proceeds centrifugally; it consists of a down-growth of the axis cylinders of the nerve fibers of the central end through the implanted segment and the peripheral part of the resected nerve. It requires at least 136 days for the regenerating median nerves to reach the peripheral part of the trunk, and 149 days in case of the ulnar. The down-growing axis cylinders travel along and in the sheaths of the old and implanted nerves.

He further found that in the flap method, the nerve flap degenerates throughout its whole extent, that in the central stump were many degenerated fibers, due to the traumatism inflicted while making the flaps, and that the budding axis cylinders were largely lost in the connective tissue between the nerve ends.

Without going into further details it is evident that the results of HUBER'S experimental research are of great practical importance. The following conclusions are certainly warranted from his study of the literature of this subject as well as from his personal observations:

1. That it is possible to restore the functional activity in a nerve with loss of substance, if the ends are united with a segment taken from some other nerve trunk, with catgut threads or with a bone-drain or tubular suture.

2. Of all methods enumerated and tried the best results are to be obtained after the implantation of a nerve segment the two ends of which are sutured by several catgut sutures to the end of the resected nerve.

3. The regeneration of the peripheral end which always degenerates so that only the sheaths of SCHWANN are met with, is the result of an outgrowth of new axis cylinders from the central stump, the budding axis cylinders following the paths of least resistance through the substance interposed between the ends of the nerve, thus reaching the peripheral part of the nerve.

4. Since the fibers in an implanted nerve segment degenerate so that only the collapsed sheaths containing a small amount of nucleated protoplasm remain, and the catgut threads used in a suture à distance, and the bone tube employed in a tubular suture, are almost entirely absorbed before regeneration has occurred to any extent, it must be concluded that the implanted substances can serve only as a guide to the budding axis cylinders.

5. That the degenerated fibers of an implanted nerve offer more favorable mechanical condition for the down-growing axis cylinder than does the connective tissue replacing various other substances, is shown by the fact that the new nerve fibers have a much straighter course and more regular arrangement in the nerve implantation experiments than in the experiments with catgut and bone-drains.

6. The same results may be obtained with these methods whether used in primary or secondary oper-

ations. The return of function takes place more slowly in secondary operations.

7. Nerve-flap formation from central or peripheral stump is not recommendable, because: 1, the flap degenerates; 2, the union with the central end is not so favorable for the budding axis cylinders as in nerve implantation, and 3, the growing fibers seem to bud into the connective tissue and not into the reflected flap.

8. Regeneration through an engrafted connection between the peripheral part of a divided nerve and an accompanying uninjured trunk is not possible.

9. In the LÉTIÉVANT–TILLMANNS operation (cross-suturing the long ends of two divided nerves and engrafting the short ends to the accompanying long stump) regeneration of but one of the peripheral segments of the two injured nerves can be hoped for; the other peripheral segment remains degenerated; as there is no reason why a regeneration of both the peripheral stumps may not be attained after the implantation of a nerve segment between the respective ends of the two injured nerves, preference should be given to the latter method.

MEDICO-LEGAL USES OF THE ROENTGEN RAYS.

The surgical application of the ROENTGEN rays is already an old story, at least as far as the surgery of the bones, more particularly in the extremities, is concerned. Their medico-legal utility is a later demonstration, though it might readily be inferred from any brief consideration of their effects. A young woman, an actress, broke her ankle while descending a stairway in an English theater. A suit for damages was instituted against the proprietor, on the claim that the accident was due to a defective step. This seems to have been proven or admitted as the defense was made that the injury was exaggerated. A ROENTGEN shadowgraph, presented before the jury, secured the plaintiff her case, the evidence being held to be incontestable.

It will be easily seen how the pictures obtained by these rays will figure hereafter in damage suits, but this is only one of their possible medico-legal uses. In the May issue of the *Annales d'Hygiène Publique et de Médecine Légale*, DR. T. BORDAS of the Faculty of Medicine of Paris gives illustrations of shadowgraphs of fetuses, which are especially illustrative as regards the development and arrangement of the bones, and he suggests that it may be possible to obtain facts as regards the condition of the lungs, etc., that will be of medico-legal value in certain cases. He also shows how these rays can be made useful in detecting the nature of suspicious packages, suspected infernal machines, without incurring the danger of opening them. Certain of the explosives used in these, the fulminate of mercury in particular, are quite opaque to these rays, and metal clockwork would naturally show in a shadowgraph. There is quite a range for investigation as to the relative behavior of different chemicals under these rays, that may in the future come before the courts in one way or another, and still another possible value they may have will be in certain questions of identity. An old fracture that is of importance in settling this question, a bullet with a history lodged in the tissues, or some other possible known peculiarity may reveal itself in the ROENTGEN negatives. On the whole the possibilities of the medico-legal value of the discovery seem quite important, and as the unexpected is always what happens, they may make their appearance in unlooked for situations. The subject is at least a suggestive one.

THE PERMANENT LOCATION.

The members of the ASSOCIATION will receive in a few days a ballot and return envelope addressed to the JOURNAL office. In accordance with the rule of the ASSOCIATION passed at Atlanta, sealed ballots will be received from June 1, to July 31, 1896. Every member is requested to vote on this question, and to sign his name legibly to the ballot, with the name of the place and his post office. These ballots, after opening the envelopes and counting, will be preserved until the next meeting of the ASSOCIATION, but the result of the count will be announced in the issue of the JOURNAL next succeeding.

The Trustees have set apart $3,000 to be placed at interest as the commencement of the building fund, and it is hoped that a much larger surplus may be set aside next year. Meanwhile before investment, it was necessary to take the wish of the ASSOCIATION as to a permanent place of publication. The proposed method is absolutely fair, and the JOURNAL itself will take no part in the matter, whether the vote shall result in the establishment of the permanent headquarters of the JOURNAL at the National Capital at Washington, or whether it shall remain in the metropolis of the West at Chicago or go elsewhere, is not a matter for concern or interference on the part of the present management of the JOURNAL. The management only hopes that members may vote solely with respect to the advancement of the interests of the ASSOCIATION, without regard to individuals or coteries. The recent growth of the ASSOCIATION in every State in the Union, and the rapid increase in the number of those who are active workers in the field of organization, gives every hope of a wise ballot, and cheerful acquiescence in the result.

CORRESPONDENCE.

The Second Pan-American Medical Congress.

A REPLY TO REFLECTIONS UPON THE MEXICANS AS PHYSICIANS AND AS A RACE.

GALVESTON, TEXAS, May 16, 1896.

To the Editor:—The approaching meeting at the City of Mexico of the second Pan-American Medical Congress, and the

appeal of our most efficient Secretary General, Dr. Charles A. L. Reed, to attend it, have aroused in me a variety of feelings impossible to describe at this moment.

Dr. Reed has stated: "The enthusiasm with which not only the medical profession, but the government of Mexico has taken hold of the proposed meeting, guarantees its success. The generous patronage which the Washington meeting enjoyed from our Mexican *confrères* places upon us a pleasant obligation to reciprocate."

Would that the whole medical fraternity of this country entertained sentiments similar to those expressed by Dr. Reed. But there are exceptions to be deplored, exceptions that tend to delay at least the unity of the profession on this continent, to judge from the attitude of some of the physicians of this country toward our southern *confrères*, and especially toward Mexicans. And sad to relate, the matter seems to be a question of national prejudices, a racial battle, as it were, this a stumbling block to true progress in all human affairs.

Although I have taken them for what they are worth in my humble estimation, and to a certain extent overlooked, pardoned them, I have not forgotten, nor perhaps will ever forget, the insults heaped upon my people by American physicians, and I deem this occasion an appropriate one to recall and resent these insults. In an article entitled "Clinical Notes on Typhus Fever of Northern Mexico," read before the Texas State Medical Association at the April (1894) meeting, and afterward published in the Transactions of the same, Dr. Clarence Warfield has this to say about the Mexicans:

"Morality (a thing unknown) is at its lowest ebb. When, from sickness, one of these people die, no matter how contagious may have been the disease, the neighbors crowd in to view the remains, even little half-naked children climbing in over the doorstep to satisfy their already growing morbid curiosity.

"A Mexican family may be ever so poor, but one or more dogs form a part of their belongings, which, when night comes, and the floor is strewn with forms of all ages and sexes, some covered and some uncovered, lie down also and fill up the intervening spaces. These people rarely undress, the same old clothing worn continuously and dirt hiding the original color of underclothing, uncleanliness and germ-laden atmosphere, all tend to encourage sickness of every sort. *Incest is of frequent occurrence, many fathers having children by their daughters and all living together.*

"They are morbidly afraid of the 'aire' (air) and 'sol' (sun) as causative agents of disease, and water as an intensifier of the same when once established, every case of sickness being, from their standpoint attributable to either one or the other, and it is a foregone conclusion that water will not be used, except for drinking purposes, throughout the trouble. *As this belief is more or less encouraged by their physicians, no one can convince them to the contrary.*"[1]

Dr. M. B. Ward published in the September (1894) number of the *Tri-State Medical Journal*, a paper entitled "Some Observations Relative to the Practice of Medicine and Surgery in the Republic of Mexico." The article contains many assertions unworthy of an impartial, dispassionate judge. Its tone is strictly non-ethical. Some of the remarks made in that document not only lack foundation, but are positively ungenerous, not to say defamatory, insulting to our brother physicians in Mexico. I will not quote from Dr. Ward's article for fear of making my communication too long.

Some one has wisely said that "an individual opinion is a very indefinite quantity, and may represent a great deal of knowledge or absolute ignorance." I will modify this sentence by saying that "an individual opinion is a very indefinite quantity, and may represent a great deal of knowlege, absolute ignorance or *intentional malice*." Granting that Dr. Warfield's effusions and Dr. Ward's assertions are based on the true state of medical practice in Mexico (and I can bring forth evidence to the contrary), the articles of these gentlemen do not show good judgment or discrimination on the part of the writers, nor do they (the articles) as a whole reflect credit on the profession of the United States, even though the latter be not at all responsible for the single opinion of any one of its members.

Why such articles should have been allowed a reading before bodies of undoubtedly conscientious, grave medical men, as the members composing the Texas State Medical Association and the Tri-State Medical Society of Illinois, Missouri and Iowa respectively, and afterward publication. I do not understand. The whole matter, it seems to me, has been unfortunate.

Is conduct like that observed by Drs. Warfield and Ward, I wonder, a reason why many American physicians desire to have the Code of Ethics completely abolished? Because, to say the least, the papers prepared by Drs. Warfield and Ward seem to be, or pretend to cast, a slur on the Mexicans as a people and on the practice of the whole medical profession of a sister republic. If Drs. Warfield and Ward have a grudge against the Mexicans as a race, or against Mexican physicians for non-professional conduct, or what not, they should complain in the proper manner, and not simply make and publish charges when at a safe distance; for this procedure is not only non-ethical and impolitic but cowardly also. Apart from this, Dr. Warfield's onslaughts on the Mexicans as a race, and Dr. Ward's harsh criticism on the Mexican practice of medicine and surgery are unwarranted, uncalled for, even supposing to be true what they have dared to assert.

Without any mental reservation whatsoever, I regard the course taken by Drs. Warfield and Ward in this matter, not only thoughtless but eminetly insulting to the profession of Mexico and to the people of that country in general. I do not care much for the opinion of the ignorant in affairs like the present, but it pains me to see educated professional gentlemen of this country, apparently without cause or provocation (which is still worse), assailing regular brother practitioners of medicine in other countries. It can hardly be believed that such conduct should be observed in a country where that magnificent document, a document pregnant with sound and healthy thought, the American Code of Medical Ethics, was created; in a country, indeed, that is noted for the general good sense and calm judgment of its citizens. Both Dr. Warfield and Dr. Ward are to be censured severely for their policy. My own satisfaction in the matter after protesting, as I do most emphatically against Drs. Warfield and Ward's attacks on my countrymen and professional brethren, is that their conduct will not be endorsed by the large majority of educated American physicians. I could with incontrovertible proofs correct each and every statement made by Drs. Warfield and Ward in their unfortunate articles, but I refrain from so doing, unwilling as I am to become involved in an unnecessary and probably angry dispute, or to impose on the patience of the reading public.

The noble efforts of the eminent American Physicians who first conceived the happy idea that tends to the unification of the profession on this continent, by the creation of the Pan-American Medical Congress, whose first meeting at the city of Washington in 1893 was crowned with brilliant success, will certainly not be materially aided by a policy such as that put in practice by Drs. Warfield and Ward. In his magnificent and eloquent discourse, the President of the Congress, Dr. William Pepper, made these concluding remarks: "Let us acquire here a closer touch with each other, a deeper faith in our profession and its noble destiny, and a stronger determination to labor in brotherly coöperation for the loftiest ideals of service to science and the race." Can this possibly be accomplished by maintaining now or in the future an attitude similar to that observed by Drs. Clarence Warfield and B. M. Ward.

The unbiased testimony of all scientific observers who have devoted special attention to the study of this subject, from

[1] Italics are mine.—D. C.

Humboldt to Brinton, shows that the Mexicans, unlike the various barbarous tribes of North American Indians, belong undoubtedly to a superior stock, and as evident proof of this there stands out in bold relief the immortal monuments which vividly interpret their remarkable advance in the arts, literature and science. But if, as the result of conquest, the energy of the Mexican race has been temporarily paralyzed as has similarly been the case with other nations of antiquity, like the Greeks and Romans for instance, my people, on account of physical, intellectual or moral characteristics, should not, can not be placed on the level with any of the truly inferior races. But what is to be expected from those blinded by prejudices, from those who are sadly wanting in logical reasoning? People there are so biased as to be carried to ridiculous extremes; people who, again, like unprincipled politicians of to-day, will say and do anything, no matter how degrading, for the sake of notoriety, or to gain certain selfish ends. The question is now being discussed in this State, for example, as to whether the Mexican is eligible or not to American citizenship! And why? On account of his origin. For it is claimed that he is neither a white man nor a negro! And what of it? But I will not enter into further consideration of so trivial a matter.

And as for the standing of medical science and the profession in Mexico, I will only say that serious observation by unbiased minds will certainly convey a better general impression of those matters than the thoughtless, ungenerous, not to say false, statements made by Drs. Warfield and Ward.

In conclusion, I sincerely trust that a large contingent of American physicians may attend the Congress at the City of Mexico on November next and, laying aside all prejudices of race or other prejudices (prejudices of any kind should not be entertained by scientific medical men), let those physicians see and study for themselves the characteristics of the Mexicans as an ethnologic element, and note whether they are not as capable of achievement in all the higher pursuits as our brethren north of the Rio Grande. I can assure the American physicians attending the Congress that, on their return, they will not imitate the conduct of Drs. Warfield and Ward (as they will have no true cause for so doing), or like a certain Mr. Lancaster of this State of Texas, say that the Mexican belongs to "a race more uncouth than the negro, less intelligent, less friendly, and more like a savage." Very truly yours,

DAVID CERNA, M.D., PH.D.

The Antivivisection Bill and the Senate.

The following informal and unofficial correspondence is self-explanatory:

CHICAGO, May 14, 1896.

The HON. S. M. CULLOM, U. S. Senate.

Dear Mr. Senator:—The views of the AMERICAN MEDICAL ASSOCIATION, and of the profession generally, are so opposed to the bill now pending in the Senate for the restriction of vivisection that I venture to ask your powerful aid in defeating the measure, which I understand has in the Senate no less adroit an advocate than Senator Gallinger.

Nearly every notable advance in the science of physiology, *i. e.*, knowledge of the functions of the organs of the body, and the most valuable facts in connection with animal chemistry, and the effects of medicines, have been made and recorded in consequence of experimentation upon the lower animals, and we therefore look with alarm upon a bill which if it become a law, will relegate science in this country to a back corner. The people who make the greatest outcry are those who know least about the subject as a rule, and should their arguments be brought to a legitimate conclusion, we should close up the butcher shops and become vegetarians. I have great sympathy with our cattle, but at the same time I have an appetite for roast beef which vegetarian sentiment and a diet of turnips and cabbage will not appease. When our antivivisectionists rise up and demand the passage of laws that they insist are for the protection of animals, let *us* insist that they prove that they are vegetarians and that by no weakness they sacrifice one of the lower animals to man's needs. Let us banish red snapper and pompano from the menu in the Senate restaurant, and as for the succulent canvas-back, the reed bird and the terrapin, let the *gourmet* die the death, unless he be willing to regale himself on beans and Boston brown bread instead. I can not conceive that the mighty fisherman from Maine or the gallant Nimrod from Missouri would consent to such a bill. The shade of Isaak Walton would rise in wrath to see any of his devoted followers forsake his paths at the first onslaught of a vegetarian enemy.

Can't you help defeat this imbecile offspring of the long-haired traveling physiologists, and let our laboratories teach the students in peace, unvexed by the nonsense of these dyspeptic sentimentalists?

Faithfully your friend, JOHN B. HAMILTON, M. D.

UNITED STATES SENATE.

WASHINGTON, D. C., May 18, 1896.

DR. JOHN B. HAMILTON, AMERICAN MEDICAL ASSOCIATION, Chicago, Ill.—Your favor of the 14th inst. is received and noted. I know so little about medical legislation, or the proper legislation in the interest of medical science and practice, that I have generally allowed such matters to go along without much interest upon my part. All I can say is, that I am in favor of whatever legislation may seem necessary and fair in the interest and progress of science and practice of medicine and the development of knowledge in the direction of physiology or a knowledge of the functions of the body. Just what the bill referred to by you means, I do not know, but I will try to give it attention.

I should be against any legislation that would interfere with the privilege of satisfying the appetite with a good roast beef, or mutton, or chicken, or duck, or terrapin, and if you can convince me that this proposed legislation is going to in any way abridge the rights of those who are fond of good things to eat, I am "agin" it. I am not so particular about red snapper as I am about canvas-back duck or terrapin. I could even spare the reed bird, but I shall insist upon all the other good things mentioned in your letter, and am opposed to any interference with their free use. While I am fond of Boston baked beans, and not particularly opposed to brown bread, yet I would not surrender a well prepared sirloin steak for either. I am not very familiar with the history and characteristics of Isaak Walton, yet I believe he was called an "angler" and his name has become immortal on account of his relation to his writings setting forth the delights of fishing, and charming those who have never become familiar with such recreation, by his works. I am one of those who have known very little about fishing—scarcely knowing how to put a worm on a fish hook—yet I have always had a fondness for shad in the spring and for white fish almost any time, and am, therefore, against any bill which would interfere with the freedom of those who are fond of fishing as a recreation—or of eating a good fish as a food.

So you may gather from what I have said that I am with you as against any legislation which will in any degree circumscribe the advancement of science or the enjoyments of eating meats or fish as a food.

Very truly yours, S. M. CULLOM.

Proper Title of a Medical Officer of the Army.

GROVELAND, MASS., May 4, 1896.

To the Editor:—I notice in the JOURNAL of February 1 an article entitled "Some Remarks about Asepsis in Military Service," read, etc., by Lieut.-Col. ——.

At first one would wonder what a military man might know about asepsis, and although there is little of professional instruction contained in the paper, I infer that this Lieut.-Col. for some reason or other ignores his professional title. This craze makes me tired, Doctor. Time was when the honorable title of doctor would be considered an honor for a prince. In point of fact, there is to-day no more honorable title, and no good reason why physicians who respect their profession should be willing to exchange it for a complimentary military title.

I send you a communication received recently from the Secretary of War. For the sake of the profession and to put a damper on bombast and militarism in the usually dignified and modest profession of medicine, you may deem best to publish all of this. Sincerely yours,

W. THORNTON PARKER, M.D.

GROVELAND, MASS, Jan. 26, 1896.

To the Honorable Secretary of War, Washington, D. C.

Sir:—I respectfully write for information concerning the commissions of medical officers in the United States Army.

In the U. S. Navy and in the Marine-Hospital Service, medical officers are known as surgeons, passed assistant surgeons, assistant surgeons, etc., and even in the armies of Europe, where the most radical system of militarism exists, under monarchial rule, medical officers are known as surgeons, assistant surgeons, etc. But in our republican form of government, where the rights of citizenship are asserted to be preëminent, our surgeons have of recent years placed their medical titles in the background, and are addressed as captains, colonels, majors, lieutenants, etc.

While our forefathers warned us that one of the greatest dangers to the life of the Republic would be the development of military aristocracy, there seems to be in our little army of the present day a most extraordinary movement in this direction. In the medical corps of our army, which contains so many foreigners, a prominent medical officer who has enjoyed the exceptional rank and pay which our medical corps furnishes for many years, has only recently, if the report be correct, qualified as an American citizen.

I write this merely to ask if this system at present existing in the medical corps of the U. S. Army has the approval of the Secretary of War and of the general officers of the U. S. Army. If it has I should like very much to know it and if it has not I should like to be able to answer foreigners who point at it as a grievous inconsistency in our republican institutions.

Very respectfully yours, W. T. PARKER, M. D.

(Brief.) GROVELAND, MASS., Jan. 26, 1896.

W. T. Parker, M.D., asks information as to commissions of medical officers U. S. Army. Says that in the Navy and Marine-Hospital Service medical officers are known as surgeons, passed assistant surgeons, etc., while in the Army they are addressed as lieutenants, captains, majors, colonels, etc., and asks if this system has the approval of the Secretary of War and general officers of the Army.

Second endorsement.

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE, Jan. 30, 1896.

Respectfully returned to the Honorable the Secretary of War.

Medical officers of the Army are commissioned as assistant surgeons with the rank of first lieutenant, assistant surgeons with the rank of captain, surgeons with the rank of major, deputy surgeons-general with the rank of lieutenant-colonel, and assistant surgeons-general with the rank of colonel. In all official communications they are addressed in accordance with these designations. It is customary in social intercourse to address medical officers by their professional titles, and in my judgment there is no objection to this form of address. Some of our medical officers, however, insist upon being called by their military title. This is in accordance with the usage in other staff corps. There seems to be no question as to the propriety of addressing a paymaster or a commissary or an adjutant-general by his military title; but in the case of a medical officer, upon whom the degree of doctor of medicine has been duly conferred, it would appear that in social and professional intercourse this title should have the preference.

GEO. M. STERNBERG, Surgeon-General, U. S. Army.

Third endorsement.

WAR DEPARTMENT, Feb. 1, 1896.

Respectfully returned to W. T. Parker, M.D., Groveland, Mass., inviting attention to the preceding endorsement hereon of the Surgeon-General U. S. Army. JOSEPH B. DOE.

Assistant Secretary of War.

The Pneumatic Dilator.

PHILADELPHIA, May 21, 1896.

To the Editor:—My attention has just been called to a passage in Dr. W. E. Owen's excellent paper on the "General and Special Treatment of Tuberculosis," in your issue of Jan. 11, 1896, which unintentionally of course upon Dr. Owen's part, is liable to be misconstrued into a recommendation by me of a certain instrument mentioned in the paper, Dr. Hawley's "pneumatic dilator." This apparatus may be capable of doing all that is said, but as I have never seen or used it, I can have no opinion about it specially worth expressing. The passage referred to is on page 67 and reads as follows: "By it [the aforesaid apparatus] the cardio-vascular and the pulmonary capacities are greatly increased, and to use the words of Solis-Cohen, 'resulting in increased function, increased elimination of waste products of function; with increased buoyancy of spirits which is no mean factor in treatment; in a word, heightened vitality.'" The remarks cited as from me (which, by the by, are not quoted *verbatim et liberatim* but slightly paraphrased) might, from the context, be thought to apply to the instrument exhibited by Dr. Owen. They are, however, a portion of my conclusions concerning the effect of *altitude* in stimulating nutrition in the prophylaxis or treatment of pulmonary tuberculosis, as may be seen by reference to page 789 of my article on Tuberculosis in Vol. I of "A System of Practical Therapeutics," edited by H. A. Hare, M.D., and published by Lea Bros. & Co., Philadelphia, 1891, from which they are cited.

I have so often and so positively expressed myself in favor of the use of pneumatic measures, and especially the inhalation of compressed air with exhalation into rarefied air, in the prophylaxis and treatment of pulmonary tuberculosis, under suitable conditions and in proper subjects, that I should not like this correction to be misunderstood as opposing any proper method of securing pulmonary expansion by pneumatic devices, though theoretically I should think the usefulness of the instrument mentioned in Dr. Owen's paper to be rather limited, and should not wish the efficiency of pneumatic treatment in general to be judged by the results such an apparatus can probably produce. But, apart from this, I believe it better that words written in connection with one therapeutic measure should not be applied, without full explanation, to another.

I have been very much gratified to learn from various expressions in Dr. Owen's thoughtful article that the views concerning the causation and the proper treatment of tuberculosis and especially of pulmonary tuberculosis, which I have put forth in the work alluded to, have favorably impressed one so careful as an observer and so clear and forcible as a writer. The larger my experience becomes, the more firmly am I convinced that our great object in the prevention and in the therapeutics of this affection, should be to increase the vital, *i. e.*, the resisting and recuperative powers of the organism in general and of the pulmonary tissues in particular. Neither drugs nor antitoxins can effect this. They may help, but they are secondary in importance. Very truly yours,

SOLOMON SOLIS-COHEN.

"Can Such Things Be?"

ATLANTA, GA., May 12, 1896.

To the Editor:—In an Atlanta daily paper of this date I find the enclosed item, which fully explains itself:

WHAT MISS CLARA BARTON SAYS OF AN AMERICAN INVENTION.

Constantinople, Feb. 21, 1896.—When in London the other day I received two packets from the United States embassy, each containing an Electropoise. To-day I received your kind letter and The Journal.

Allow me to thank you heartily and gratefully for the splendid little machines. As you remember, I am not altogether a stranger to the virtues of the Electropoise (saw its work in Jacksonville, Fla., in 1888), and I will take great pleasure in passing your offering to afflicted humanity through my medical staff. I feel assured the physicians will avail themselves of such valuable aid. Very sincerely yours,

CLARA BARTON.

In reply to a letter asking permission to publish the above, Miss Barton writes under date of April 23, through her private secretary, the letter given below:

Constantinople, April 23, 1896.—Your letter of request was duly received. Miss Barton has no objections to your publishing her letter, if by so doing the wonderful little instrument will be still more gratefully received by suffering humanity.

Very truly yours, G. H. PULLMAN, Private Sec'y.

The item closes with mentioning the agents' names and office, and with the statement that any information about the "splendid little machines" will be cheerfully given by said agents.

Every one admires Miss Barton for her noble work and life of self-sacrifice which she has been engaged in for many years. Her use and indorsement, however, of the very worst of the patent frauds is, to say the least, a new departure, and not a consummation devoutly to be wished by any means.

Yours very truly, L. B. GRANDY, M.D.

Injection of Antitoxin.

WHEELERSBURG, OHIO, May 19, 1896.

To the Editor:—Referring to Eulenberg's contention, as reported in the last number of the JOURNAL, that the sudden death of a healthy child at Hoechst-on-Main after an injection of antitoxin, could not have been due to the virulence of the serum, but was perhaps the result of embolism, the puncture of a vein, or the introduction of air, may it not be pertinent to inquire whether ordinary hypodermic medication as heretofore practiced by all classes of physicians, has been followed by sudden deaths similar to those reported after the use of antitoxin? JAMES L. TAYLOR, M.D.

PUBLIC HEALTH.

"Domestic Medicine" Popular in Prisons.—It is recorded that in one of the large English prisons the favorite book in the library for the use of the prisoners, was that of Buchan's "Domestic Medicine." At first the curious fondness of the inmates for such a work was not apparent, but subsequently it transpired that the prisoners, anxious to play the rôle of malingerers and so escape their tasks, laid themselves out, with the help of the volume, to study carefully the symptoms of certain diseases with a view to deceive the prison surgeon.

Something Tangible in Sanitary Administration against Tuberculosis (Bovine).—The French government has decreed that all cattle imported into France from foreign countries must be tested with tuberculin at the frontier before being admitted. In those cases in which the characteristic reactions denoting the existence of a tuberculous process are revealed the animals are, after being marked, refused entrance into the country unless the owner gives his consent to immediate slaughter. The tuberculin test is not applied to cattle which are formally declared to be imported for slaughtering purposes. In these cases, however, proof must be forthcoming within fourteen days that the animals have been killed in the presence of an inspector.

Smallpox on the Isle of Man in the 18th Century.—Dr. Charles Steele, of Clifton, sends to the *British Medical Journal*, certain interesting extracts from the parish register of Ballaugh church, Isle of Man, which gives the deaths in that parish from 1704 to 1799 from smallpox and other causes. Within that period smallpox killed in this small parish 166 persons, while the deaths from all other causes numbered only fifty. In fact, three out of four persons whose burials were registered in the parish met their death from smallpox. And yet there are a substantial number of our population who wish to go back to the eighteenth century for our treatment of the disease.

Amendment of Colorado Pharmacy Law.—Sections 10 and 12 of the pharmacy law passed in Colorado in 1893 were amended in 1895; the former, raising the penalty from $25 to $250 for any person other than a registered pharmacist retailing or dispensing drugs; the latter, by incorporating a provision that the pharmacist failing or neglecting to procure his annual registration, or any person making any false representations to procure for himself or for another registration, or any person violating any other provision of this act, shall for each and every offense be liable to a fine of $100.

Provision for Lost Diplomas in Florida.—Section 806, chapter 4, of the Revised Statutes of the State of Florida, provided for the examination, by the board of examiners, of the applicant for a certificate of qualification to practice medicine, "upon the production of his medical diploma from a recognized college." This the legislature of that State amended in 1895, by adding in this connection, "or in the event said applicant shall have lost his diploma, or the same shall have been destroyed prior to the year 1870, then upon satisfactory evidence to such board of such loss or destruction."

California Coroner to Appoint Physician.—In counties of the first class, it was enacted in California in 1895, the coroner shall appoint a competent physician, whose duties it shall be to perform autopsies upon the bodies of all deceased persons when inquests are held. Such physicians shall, after the performance of such autopsy certify in writing his professional opinion as to the cause of death, which certificate shall be filed with said coroner. The physician so appointed shall receive as compensation for such services $2,400 per annum, to be paid out of the general fund of the county in monthly installments of $200 each.

Improved Health Rate of Rome.—The following note from the *Medical News* shows the vast strides of sanitary improvement that have been made at Italy's capital: "Roman fever is almost a thing of the past. From 650 in 1881, the deaths from malaria ran down to 254 in 1891, while for the last five years the average has been 149, the number in 1895 being 125. These figures are all the more significant in that the population of Rome has increased from 300,000 to 467,000 in fifteen years. An equally remarkable diminution has taken place in the death rate from all other infectious diseases, so that Rome, even in the traditional unhealthy season, is one of the most healthy capitals in Europe."

Sewer-Gas Dangers Affecting Tall Buildings.—Sanitary Engineer C. F. Wingate writes to one of the New York City dailies that he has observed a danger from tall buildings, that has not been noted by others, namely the discharge of filthy sewer-gases from soil-pipes of comparatively low houses into the windows and light-shafts of adjacent occupied rooms. He instances one striking instance where "the entire family of the superintendent of a large office building, occupying spacious rooms on the roof, surrounded by lower buildings, but with a magnificent outlook over the harbor, have suffered from severe forms of zymotic disease, including repeated attacks of malarial fever, so that the family have been nearly decimated, and have

been forced to abandon their apparently ideal quarters. Growing plants were destroyed by the virulent odors which penetrated their rooms, so that it was impossible to open windows, or to occupy the apartments for living purposes."

New York City Board of Health and Its Anti-expectoration Ordinance.—On May 12 that Health Board adopted the following ordinance, to disobey which is a misdemeanor punishable by fine or imprisonment or both:

SEC. 222. Spitting upon the floors of public buildings and railroad cars and of ferryboats is hereby fobidden, and officers in charge and control of such buildings, cars and boats shall keep posted in such public buildings and in such railroad cars and in such ferryboats a sufficient number of notices forbidding spitting upon the floors, and janitors of buildings, conductors of cars and employes upon ferryboats shall call the attention of all violators of this ordinance to such notices.

The full Board voted for the resolution.

Practical School Hygiene.—At the meeting of the Auxiliary Sanitary Association of the Illinois State Board of Health in Springfield, October 22 and 23, action was taken looking to a radical improvement in school hygiene. A committee was appointed to confer with the State Superintendent of Public Instruction and the several County Superintendents of Schools with a view to drafting an amendment to the State school law requiring teachers to qualify physically as well as mentally before receiving certificates entitling them to teach—that is to say, that they shall at least be free from the danger of conveying pulmonary tuberculosis to the scholars under their charge; making a thorough knowledge of school hygiene a requirement for the certificate; and placing all public schools under medical supervision to the end that children presenting symptoms of any contagious disease may be examined by the duly appointed school physician, and on his authority referred to the family physician, to be admitted to school again only on the certificate of the latter. As 101 County Superintendents are counted on as friendly to this proposed legislation there is ground for favorable action thereon by the next General Assembly.

The Iowa Public Health Association held its fifth annual session at Davenport, May 19–20. Interesting papers on sanitary and hygienic subjects were read and the following resolutions favoring the establishment of a National Bureau of Health unanimously adopted:

WHEREAS, The discharge of sewerage into streams, ponds, lakes or other bodies of water is a serious and rapidly growing menace to public health by polluting the sources of water supply to a dangerous degree, and

WHEREAS, The power of the State committee or municipality is wholly inadequate to check or in any way control the most pernicious method of sewerage disposal;

WHEREAS, We believe the authority of the Federal Government is absolutely necessary to put a stop to the growing evil, therefore be it

Resolved, That the Association most earnestly desires and would most heartily approve the creation of a National Bureau of Health, among whose functions should be the control of all rivers, streams, lakes, ponds or other bodies of water, with reference to their sanitary condition.

Resolved, That the State Board of Health of Iowa and the State Board of Health of Illinois and that of Minnesota be requested to take as promptly as possible such action as shall lead to the drafting and formulating of a petition to Congress asking that a National Bureau of Health be created, or otherwise putting the necessary machinery in motion that this very important end may be obtained.

Not American Stock this Time.—Close upon the most recent of the repeated interdicts of American meats by hostile foreign governments comes a cable dispatch announcing that the food purity scare which has been so tenderly fostered by the agrarian politicians of Germany has received a sensation fillip by the seizure last week of 400 pounds of food infected with tuberculosis at the Berlin Trades Exhibition in the institution devoted to the sale of cheap food to the public, where thousands of persons eat dinners daily that cost a penny a head. The infected meat came from Mecklenburg, and not from America, which country the German officials profess to regard as the place of origin of all of the diseased meats in the world.

In spite of the dictum of Baron von Hammerstein-Loxton, Prussian Minister of Agriculture, Domains and Forests, that it is impossible to put a Chinese wall around Prussia to prevent the importation of foreign animals, the provincial Governors have one after another closed their boundaries against the adjoining provinces, on the ground that the animals raised in the proscribed provinces are infected with foot and mouth disease and ailments of that kind, and now the frontier of Prussian Silesia has been closed against Russian hogs.

The *Reichsanzeiger*, the official organ, publishes a notice issued by the Governor of Dusseldorf, in Rhenish Prussia, closing the markets of that province againt sixty districts throughout the empire, among which are Hamburg, Königsberg, Breslau, Magdeburg, Lueneburg, Wiesbaden, Cologne, Aachen, Dresden, Leipzig, Carlsruhe, and Mannheim, besides provinces like Mecklenburg, Saxe-Weimar, Brunswick, etc. In fact, there has never been such a sweeping charge of infection printed in Germany.

Malarial Conditions in Eastern Carolina; Artesian Wells needed.—In the *Bulletin* of the North Carolina Board of Health, for April, Dr. Julian Baker of Tarboro, discusses the conditions of the eastern section of his State as follows:

"The topographic and meteorologic conditions in Eastern Carolina furnish a most suitable environment for the life of the malarial germ; so our effort must be directed primarily to the prevention of the development of the germ outside of the body, and then its entrance into the body. Notwithstanding the fact that Sternberg failed to find the germ in the marsh mud of Louisiana, the low marshy lands of the Roman Campagna, the bottom lands of Mississippi, Arkansas and Alabama, and the low lands of our section are too familiar as favorite localities for the worst forms of malaria to controvert the fact that heat, moisture and decomposing vegetable matter constitute the favorable environment which we must first remove in order to prevent the germ's development. It is inexplicable at presents that these marshes and low lands have been known to become healthy without apparent change in previously favorable conditions for development; it is highly probable, though, that the germ will never disappear unless the environment is changed. Clearing, draining and cultivation will accomplish this in a measure. Oxygen being necessary, as claimed by Crudeli, to the existence of the germ, close sodding with grass after drainage is the best sanitary cultivation. The Carolina poplar or cotton-wood tree, eucalyptus and several others, have gained a reputation as absorbers of the virus from miasmatic atmospheres."

Doubtless one tree is as good as another for this purpose, and the claim of those mentioned is referred to, only to deny it absolutely. In Eastern Carolina the water supply is principally from shallow wells, ten to twenty feet deep, in wet seasons the water rising very near the surface level. The question of prevention resolves itself into one of purifying the water from shallow wells, or getting purer water from some other source. By boiling the well water all vitality is destroyed and dead organic matter is harmless. This is the only safe rule if any well-water is to be used.

"The custom prevails in some malarial sections to boil enough water in the morning for the day's consumption. After boiling it should be placed in a porcelain cooler and closed up. By using only boiled water the malarial attacks may be reduced to a minimum. It is a matter of common observation that, in families using boiled water, those who, for some reason do not drink it have been known to have malarial attacks while the others escaped. Purer and better water can be obtained from deeply bored or driven wells and cisterns. When proper care is exercised in collecting, no better water can be procured than cistern water. The Board of Health has done great good in disseminating information in regard to bored wells. They are coming into more general use, and wherever used malaria prevails to less extent; but the pump gets out of order, is troublesome to repair, and doubtless too, after a while, unless very deep, these wells become contaminated and their use is discon-

tinued. Artesian wells, where practicable, will fill all the requirements of pure drinking water, except in very rare instances. Their use is beginning to attract attention everywhere. Experimental wells are being sunk in many places, and no good reason exists why artesian wells should not be generally used in our section. Eastern Carolina needs purer drinking water. This can be obtained by boiling ordinary well water, by using cistern water properly collected, deep bored or artesian wells. Let our people realize this and put it into practical operation, and Eastern Carolina becomes at once the healthiest, the richest and the grandest section of our Commonwealth."

Health Reports.—The following health reports have been received in the office of the Supervising Surgeon-General Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Florida: Pensacola, May 20, 1 case.
Michigan: Ionia, May 16, smallpox reported.
Tennessee: Memphis, May 16 to 23, 4 cases.

SMALLPOX—FOREIGN.

Alexandria, April 16 to 22, 2 deaths.
Bristol, May 2 to 9, 4 cases.
Buda-Pesth, April 8 to 29, 9 cases, 1 death.
Bombay, April 14 to 28, 77 deaths.
Calcutta, April 4 to 18, 10 deaths.
Callao, January 1 to April 1, 141 deaths; April 1 to 19, 10 deaths.
Cardiff, May 2 to 9, 2 cases.
Gibraltar, May 3 to 10, 1 case.
Guayaquil, April 24 to May 1, 5 deaths; May 1 to 8, 5 deaths.
Madras, April 18 to 24, 1 death.
Madrid, April 28 to May 5, 13 deaths.
Naples, May 2 to 9, 7 cases, 3 deaths.
Odessa, April 25 to May 2, 27 cases, 2 deaths.
Prague, April 25 to May 2, 3 cases.
Rotterdam, May 2 to 9, 1 case.
Rio de Janeiro, April 18 to 25, 3 deaths.
Trieste, April 18 to May 2, 1 case.
Tuxpan, April 25 to May 2, 1 case, 1 death.
Warsaw, April 25 to May 2, 4 deaths.

CHOLERA.

Alexandria (Egypt), April 16 to 22, 7 deaths.
Bombay, April 14 to 28, 19 deaths.
Calcutta, April 4 to 18, 565 deaths.

YELLOW FEVER.

Brazil: Ceara, March 1 to 31, 3 deaths; Rio de Janeiro, April 18 to 25, 96 cases, 68 deaths.
Cuba: Sagua le Grande, May 11, yellow fever reported.

BOOK NOTICES.

Fifteenth Annual Report of the State Board of Health of New York. Transmitted to the Legislature March 6, 1895. Albany, N. Y. James B. Lyon, State Printer. Pp. 775, 8vo, cloth, with supplement containing 18 maps.

This report is one of the best that this Board has yet produced. The Board does not devote much time to pedagogics, but goes "straight on" furnishing aid to towns and local boards of health, a complete report whereof will be found in this volume, with the maps showing the plans of sewerage and sanitary improvements.

In 1894 the State Legislature appointed a special commission on tuberculosis in cattle in the State of New York, and in this report, a statement of the operations of the commission is given. The report states:

"Tuberculosis causes one in every eight deaths in this State, according to the statistics of the State Board of Health. No other disease approaches this as a cause of mortality to the human family. There is a complete unanimity of opinion now, in the scientific world as to its communicability from man to man, and from animals to man, and man to animals. That milk and its products will convey it, has been proven repeatedly. This has now passed beyond the experimental stage, and is no longer open to doubt. It has also been proven that lower animals fed with tuberculous meat become tuberculous as a result of such feeding.

"It may be accepted as a fact that milk from tuberculous cows in which the udders are distinctly affected, contain tubercle bacilli, and that such milk is a dangerous aliment, and that sterilization would not render it a desirable nutrient material, because of other poisonous products contained in it as a result of the disorganization caused by the disease. When it is considered that milk is the principal aliment during childhood and enters largely into the dietary for all ages, it is a highly important question.

"The channel of infection is more likely to be through the alimentary tract, since recent investigations have shown that the sun's rays are inimical to the bacilli tuberculosis. The danger of infection through the respiratory tract is therefore lessened.

"The New York State Board of Health examined 22,000 cattle during the year, and one-half following the passage of the tuberculosis act, and of this number, caused to be slaughtered about 800. So important was the work thought to be that the commission on tuberculosis in cattle was constituted on the 31st day of May, 1894, to further inquire into the existence of tuberculosis in cattle. During the short time since its creation this commission has carefully studied, by a system of special inspection, the prevalence, distribution, mode of infection and general behavior of tuberculosis in cattle, confining part of its work to a given area, which was thought to be comparatively free from general infection from other sources. In this district 947 animals were examined, and out of this number 66 were condemned and slaughtered. A dissection of each animal showed it to be tuberculous, showing 6.96 per cent. diseased, and it is believed that this is fair average if the State were taken as a whole. A large proportion of these animals were common stock, which fact controverts the opinion which obtained very generally hitherto, that common bovine animals have immunity from tuberculosis. Tuberculosis is not a respector of breeds. The disease once introduced into a herd, spreads with certainty throughout, and with a rapidity proportionate to the insanitary surroundings. Cattle kept in well-ventilated stables, with free admission of sunlight, are less prone to the disease, while those kept in dark, ill ventilated stables, amidst filth and insanitary environments, develop the disease rapidly once it is introduced.

"The investigations of this commision have shown that tuberculosis is, under certain conditions, congenital, but its general diffusion is due to contagion. But a very small proportion of tuberculosis is disseminated by transmission. All the facts in the possession of this Commission, as a result of investigation, show that tuberculosis spreads with certainty when diseased and healthy animals are housed together. The contagiousness of the disease is established beyond a doubt, for in most cases, it can be traced from herd to herd in localities where dairymen deal with each other in the purchase of cattle from infected herds."

Yearbook of the United States Department of Agriculture, 1894. Government Printing Office. 8vo, cloth, pp. 608. Washington: 1895.

Of all the departments of the Government, few have made more progress in general usefulness than the Department of Agriculture. This has been almost entirely due to its scientific Bureau. This yearbook is a new departure and will surely increase the popularity of the Department.

This volume is divided into three sections:

1. Report of the Secretary for 1894, giving a general account of the operations of the Department.

2. Essays and papers by chiefs of Bureaus and divisions, on their general work, and on special studies of interest to the farmer.

3. An appendix made up of statistical tables useful for reference.

The contents of this yearbook are: 1. Report of the Secre-

tary. 2. The Federal Meat Inspection by D. E. Salmon. 3. Education and research in Agriculture in the United States by A. C. True. 4. What Meteorology can do for the Farmer, by M. W. Harrington. 5. Value of Forecasts, H. C. Dunwoody. 6. Soils in Relation to Crop Production, Milton Whitney. 7. Water as a Factor in the Growth of Plants, by B. T. Galloway and A. F. Woods. 8. Mineral Phosphates as Fertilizers by H. W. Wiley. 9. Fertilization of soil as Affecting the Orange in Health and Disease, H. J. Webber. 10. The Geographic Distribution of Animals and Plants in North America, C. Hart Merriam. 11. Hawks and Owls as related to the Farmer, A. K. Fisher. 12. The Crow, Blackbirds and their Food, F. E. L. Beal. 13. Some Scale Insects of the Orchard, L. O. Howard. 14. The more Important Insects Injurious to stored Grain, F. H. Chittenden. 15. The Dairy Herd; its Formation and Management, H. E. Alvord. 16. Suppression and Prevention of Bovine Tuberculosis, Theobald Smith. 17. Pasteurization and Sterilization of Milk, E. A. De Schweinitz. 18. Food and Diet, W. O. Atwater. 19. Pure Seed Investigation, G. H. Hicks, and eight other articles peculiarly relating to the farm. The yearbook of the Agricultural Department has "come to stay."

Borderland Studies, Miscellaneous Addresses and Essays, pertaining to medicine and the medical profession, and their relations to general science and thought by GEORGE M. GOULD. Formerly editor of *Medical News*, Philadelphia: P. Blakiston, Son & Co. 1012 Walnut Street. 8vo, cl., pp. 380. Price $2.

The profound scholarship, the keen judgment, and the humor which pervades Dr. Gould's writings are destined to make them popular. Although a shudder goes through one when some old time image is swept away by a single stroke of the sword, yet we must admit that if there were no iconoclasts there would be no progress in civilization. If there were no reformers there would be no reform; if there were no revolutionists, governments would go on forever, grinding the poor and laying additional burdens on the patriotic; the chains of the slave would clank to deaf ears, and the race become covered with the dust of antique custom.

There is another thing that is evident in all the writing of Dr. Gould, and that is the absolute sincerity of the man. No weak or foolish sentiment appears in any article; it is entirely clear that he believes what he writes, and equally clear that no motives of policy govern. Whether perpetrated by friend or foe a wrong is a wrong, and as such to be pilloried. A master of satire, he rarely uses it for personal punishment, but merely for decorative purposes.

In this book we find some of the more thoughtful of the editoral articles as published in the *Medical News*, and essays published in the *Monist* and the *Open Court*. This volume places them on permanent record; even when one can not agree with all of them he must feel that medical literature is enriched by their preservation and the standard of American scholarship sustained by able hands.

Twentieth Century Practice, an International Encyclopedia of Modern Medical Science by leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York city. In twenty volumes. Vol. V. Diseases of the Skin. New York: William Wood and Company. 1896.

The contributors to this volume, with perhaps two exceptions, are well-known writers on dermatology, and several have text-books of their own. Surely, the duty of fairly depicting the state of knowledge on this subject could not have been intrusted to abler hands.

Charles W. Allen, M.D., New York; John T. Bowen, M.D., Boston; L. Brocq, M.D., Paris; L. Duncan Bulkley, M.D., New York; H. Radcliffe Crocker, M.D., London; James Nevins Hyde, M.D., Chicago; Moriz Kaposi, M.D., Vienna; H. Leloir, M.D., Lille; D. W. Montgomery, M.D., San Francisco; Arthur Van Harlingen, M.D., Philadelphia, and H. Whitehouse, of New York, are the contributors. The text is brought up to date, the illustrations are excellent, and the publisher's part of the book is all that could be desired. This volume is a worthy companion to the other excellent ones of the series.

Transactions of the American Orthopedic Association, Ninth Session, held at Chicago, Sept. 17-19, 1895, Vol. VIII, 335 pages, 8vo, cl.

It is printed in clear type on fine paper, and illustrated with numerous cuts showing deformities and the apparatus for their treatment, some new to the profession. The society has fifty-two active and twenty-one corresponding and honorary members, and this list includes the names of many of the most prominent workers and writers on orthopedic surgery in the United States and foreign countries. The volume contains lists of officers and members, active, honorary and corresponding; constitution and by-laws, and thirty-eight papers by men of well-known ability.

The volume will be read with interest and profit by all surgeons interested in orthopedic work.

The following are the officers for the ensuing year:

President, Dr. Samuel Ketch, New York, N. Y.

First Vice-President, Dr. H. M. Sherman, San Francisco.

Second Vice-President, Dr. W. R. Townsend, New York, N. Y.

Treasurer, Dr. E. G. Brackett, Boston.

Secretary, Dr. John Ridlon, 103 State Street, Chicago.

City of St. Louis Health Department, eighteenth annual report of the Commissioner, for the year ending March 31, 1895.

This report of Dr. Homan is more than usually interesting. In addition to the report of the Health Commissioner the annual statements of subordinate officers, and of the superintendents of the City Hospital, Insane Asylum, Female Hospital, Poor House, and of the Physician to the Quarantine and Smallpox hospitals. "St. Louis," says Dr. Homan "is the focal point of all this drainage[1] and must bear the brunt of the attack as best she may, no place of any considerable size below drawing public supplies from the channel of the Mississippi, therefore the means of prevention and correction should be most diligently considered here and now." He therefore recommends the Smart bill to appoint a National Commission for the investigation of the pollution of water supplies where such pollution affects or threatens to affect the water supply of more than one State. It is to be regretted that the bill has not been favorably considered. That is one of the matters that the new department of Public Health will have to take up, when it is established.

Transactions of the New York State Medical Association for the Year 1895. Vol. XII. Edited for the Association by E. D. FERGUSON, M.D., of Rensselaer County. 8vo, pp. 603.

It contains a list of presidents and vice-presidents from the founding of the Association in 1884. Darwin Colvin, M.D., Clyde, is president, and E. D. Ferguson, M.D., Troy, secretary for 1895-96. Among the many valuable papers appears the address of the retiring president, Austin Flint, M.D., New York, on "The Coming Rôle of the Medical Profession in the Scientific Treatment of Crime and Criminals." E. H. Squibb, M.D., in his paper, "Brief Comments on the Materia Medica, Pharmacy and Therapeutics" of the year ending Oct. 1, 1895, gives in concise form a résumé of observations of effects of many of the newer additions to the pharmacopeia.

Obstetrical Accidents, Emergencies and Operations, by L. C. H. BOISLINIERE, A.M., M.D., LL.D. Late Emeritus Professor of Obstetrics in the St. Louis Medical College, etc. Illustrated. Philadelphia: 1896. W. B. Saunders, 925 Walnut Street. 8vo., cl., pp. 381. Price $2.00.

This handbook comprises the essentials of the branches set forth in the title conveniently arranged and admirably stated. It seems to very happily present in a small compass the present teachings of the art. The publisher has well performed

[1] From the Illinois and Missouri Rivers.

his part of the book by furnishing excellent illustrations. It is a book which will be of great service to students, and as well to young practitioners, for everybody knows that the young obstetrician invariably has the most desperate cases.

A Compend of Gynecology, by WILLIAM H. WELLS, M.D., with 150 illustrations. Philadelphia: 1896. P. Blakiston, Son & Co. Price 80 cents, cl., pp. 262.

This is an excellent book of its class, well printed, profusely illustrated, and admirably compiled. Some of the larger books might study this book as an object lesson in the department of condensation.

A Compend of Diseases of Children, by MARCUS P. HATFIELD, A.M., M.D., 2d edition. Revised. Philadelphia: 1896. P. Blakiston, Son & Co. Cloth, pp. 220. Price 80c.

Another aspirant for classroom honors, is found in Dr. Hatfield's compend. It is with pleasure we note that the author has used the reformed spelling, and the metric system. There are few errors and the arrangement is excellent.

Proceedings of the Philadelphia County Medical Society, Vol. XVI, Session of 1895. ALFRED STENGEL, M.D., Editor. 8vo, cl., pp. 400.

It contains, in addition to lists of officers and members, forty-seven papers on the various branches of medicine and surgery, many of them valuable additions to the literature of the subjects on which they treat. The society now numbers nearly 700 members.

NECROLOGY.

ORIN D. TODD, M.D., of Eminence, Ky., died in Louisville on May 4. He had been ill for about six weeks. He suffered with a complication of troubles and died with symptoms pointing to serious lesion of the kidneys. Dr. Todd was 53 years old. His early education was obtained at the local schools of Eminence and his medical education was received at Jefferson Medical College at Philadelphia, graduating soon before the outbreak of the war, during which he served as a surgeon; at the close of it he settled in Eminence, residing there continuously until his death. He was a railroad surgeon of some prominence, and served as referee for the State Board of Health in Henry County since the passage of the Medical Practice Law a few Years ago. He has been vice-president of the Kentucky State Medical Society and a prominent candidate for the presidency. No man had more friends than Dr. Todd and his death is a personal loss to many throughout the State as well as in his own county. No gathering of the State Medical Society was complete without Todd, and he was always down on the program to answer the toast of the "Ladies" or the "Absent Ones," which was always full of mirth and pleasantries, though he was unmarried. He was a most generous and noble soul, generous when it was to his interest to be otherwise; charitable always; happy, bright and cheery at the bedside of the sick; a comforting friend to the dying; a typical friend in need; generous and loving to his friends and kind and charitable to the stranger within his gate. His heart was a most genuine one, a lover of fun, a great, noble man with the heart of a great, noble boy. At his home there was no public gathering where Dr. Todd was not a welcome visitor; there was no private entertainment where his smiling face did not beam a welcome and a benediction. As a friend said: "There was no man among us so sincerely loved and no man so much deserved that love; how sadly he will be missed only the people of Eminence can tell, and all that section of country as well."

CARLTON PENNINGTON FROST, M.D., LL.D., dean of Dartmouth Medical College, at Hanover, N. H., May 24, of heart disease. Dr. Frost was born in Sullivan in 1830. He fitted for college at Thetford Academy and graduated from Dartmouth in 1852. In 1855 he graduated from Dartmouth Medical College, and from New York Medical College in 1857, with the degree of M.D. The degree of LL.D. was granted him by Dartmouth in 1890. From 1857 to 1862 he practiced in St. Johnsbury, Vt. Thence he went to the civil war as a surgeon of the Fifteenth Vermont Volunteers and acted as surgeon of the board of enrollment from 1862 to 1865. At the close of the war he settled in Brattleboro, Vt., where he practiced until 1871, when he became a lecturer on science and practice of medicine in the Dartmouth Medical College, and was appointed professor of the same subject in 1871. He has served as dean for twenty-nine years, and since 1881 he had been on the college board of trustees. He had also been a trustee of the State Asylum and president of the State Medical Societies of New Hampshire and Vermont.

EMMETT THOMAS GAMMAGE, M.D., of Brooklyn, died May 9. He was born in Northampton, England, in 1840. He studied medicine and graduated from the Royal College of Physicians and Surgeons. He lectured throughout England in the interest of the charter movement, and was indicted for sedition, but was never tried. He came to this country in 1868, and settled in Brooklyn, where his work as a music composer and critic gained him some fame. He has been prominently identified with many musical societies, and was at one time president of the Brooklyn Choral Union. His widow and two children survive him. His daughter, Florence Maud Gammage, is well known as a concert singer.

AMOS H. JOHNSON, M.D., of Salem, Mass., died May 12, aged 65 years. Dr. Johnson was born in Boston, August 4, 1831. He was educated at Chauncy Hall School, Phillips Andover Academy, was graduated from Harvard in 1853 and from the Andover Theological Seminary in 1856. From 1857 to 1861 he was pastor of the Congregational Church in Middletown, Mass. In the spring of 1862 he entered the Harvard Medical School, obtaining his degree in 1865. In 1866 he settled in Salem as a practicing physician, where he had been located ever since.

ST. GEORGE BRIDGES, M.D., at Richmond, Va., April 20, of appendicitis. He had made a special study of appendicitis and was considered an authority on that disease.——Emil Custer, M.D. (University of Würzburg, Germany, 1845), at Manchester, N. H., May 18, aged 76 years.——Thomas F. Hines, M.D. (College of Physicians and Surgeons, Keokuk, Iowa, 1892), at Middle Creek, Ohio, May 13.

SOCIETY NEWS.

The Louisiana State Medical Society held its seventeenth annual session at New Orleans, La., May 12 to 15. P. E. Achmard, M.D., Acting President, delivered the annual address. The program included a clinic each morning at the Charity Hospital.

Pennsylvania State Medical Society.—At the annual session held at Harrisburg, Pa., May 19 and 20, the following officers were elected for the ensuing year: President, Dr. E. E. Montgomery, Philadelphia; Vice-Presidents, Dr. C. O. Shaw, Allegheny County; Dr. F. P. Ball, Clinton; Dr. T. M. Livingston, Lancaster; Dr. A. C. Wentz, York County; Secretary, Dr. W. B. Atkinson, Philadelphia; Assistant Secretary, Dr. Adolph Koenig, Allegheny County; Treasurer, Dr. G. B. Dunmire, Philadelphia; Members of Judiciary Council, Drs. M. A. Rhoads, Berks; John H. Packard, Philadelphia; John Curwen, Warren; delegates elected to Pan-American Medical Congress are J. M. Anders and Ernest LaPlace, Philadelphia; W. F. Bacon, York; R. J. Ramsey, Franklin County; A. M. Miller, Lancaster; E. M. Corson, Montgomery County; F. F. Davis, Venango County. The next convention will be held at Pittsburg in September, 1897.

MISCELLANY.

Reading Room for Students.—A Paris medical journal, *Médecine Moderne*, has founded a free reading room for the benefit of the medical students of the Latin Quarter, and the success of the new departure has surpassed all expectations.

The Medical Cricketer.—Mr. W. G. Grace, the adored champion of cricket in England, has been honored by national testimonial the value of which is not far from $45,000. The major part of this handsome gift has been invested in income-bearing securities. Mr. Grace was admitted to practice as a surgeon in 1879.

Period of Gestation.—The supreme court of Nebraska held, April 7, 1896, in the case of Davison v. Cruse, that the probable duration of the period of gestation is a question of fact, to be shown by proper evidence in each particular case wherein that question is material. In this respect it says it is quite analogous to the existence of negligence as contributing to personal injuries.

Need Not Make Out Prescriptions.—A druggist who is a regular physician, the court of appeals of Kentucky holds, April 15, 1896, in the case of Lindsay v. Commonwealth, need not make out for himself prescriptions prescribed and filled by him as such physician and druggist for others, and preserve them as a protection from prosecution, as for example under the Kentucky law, for selling liquor without a license.

Sacral Eschar Following Vaginal Hysterectomy.—Both Legueu and Villar have called attention to this possible consequence of vaginal hysterectomy. In one case, four days after a tedious operation in which an enormous fibroma had been removed, the patient complained of pain below the kidneys, and a very large eschar made its appearance, suppurating and much distressing the patient, accompanied by incontinence of urine and feces.—*Bulletin Médical*, April 8.

The First Female "Master in Surgery."—Miss Louisa Aldrich-Blake has achieved the distinction of becoming the first Master in Surgery of the University of London. She has, by winning this distinction, capped an honorable career as a student at the London School of Medicine for Women, having distinguished herself in every part of her student course. Miss Blake is Curator of the Anatomic Museum at the Royal Free Hospital, London.

A Valuable Prize Divided Between Drs. Roux and Behring.—The French Academy of Medicine has divided the Prix St. Paul of $5,000 between Dr. Roux, of the Pasteur Institute, and Dr. Behring, of Berlin, for their discovery of the anti-diphtheritic vaccine. The *Figaro* says that a large number of German and English savants have accused Dr. Roux of having wished to take to himself all the credit of this discovery. The truth is that Dr. Roux has constantly refused every prize or reward, unless a part thereof shall have been granted to Dr. Behring.

The Reason for the High Price of Eunuchs.—In Egypt lads from 7 to 10, are castrated by cutting off at one stroke the scrotum and penis with a razor, after which the child is buried in dry sand almost to his neck, to check the flow of blood, for four or five days. Another method is to sever the penis by means of a stout cord tied around it, the ends of which are violently pulled. The pain of each method is intense, and two-thirds of the children castrated succumb to these barbarous mutilations.—*Bulletin Médical*, April 15.

How the Attendant got the Bath.—The following narrative is taken from an English journal: In the west country, in Somerset, two women became insane during the same week. The relieving officer, with the assistance of a female attendant, removed them to an asylum. While the relieving officer and the medical officer were absent from the room, the nurses came and mistook the patients, for while one was taken to the bath-room the other was left behind, and in her place the attendant who came with her, despite her protests, screams and oft-repeated statement that she was not the patient, was removed, stripped and bathed.

A Variety of Streptococcus Refractory to Marmorek's Serum.—Mery has succeeded in isolating a streptococcus from a patient with malarial fever, which proved extremely virulent on mice and rabbits, and yet resisted completely the effect of Marmorek's serum, tested again and again. It resembles very much the streptococcus found in strangles. Mery thinks that his discovery explains the variable action of Marmorek's serum, which has no effect on the new streptococcus, while destructive to the usual kind.—*Bulletin Médical*, April 22.

Clinical and Experimental Study of Infarction and Rotation of the Spleen.—Urso describes two cases he has operated upon for wandering spleen, and reviews the twenty-six cases on record of infarcted wandering spleen, combined with a twisted pedicle. He thus presents the anatomic and clinical picture of this complication of ectopic spleen. He also produced similar conditions in dogs by ligating the splenic veins, and found that the rotation of the spleen, when it occurs suddenly, may produce the symptoms of an acute strangulation. Twisting the pedicle sometimes produced infarction, of an embolic character. Infarctus of the spleen, he stated, is caused therefore by some interference in the circulation in the branches of the vena lienalis. —From *Policlinico*, Nos. 1-3, in *Centralblatt f. Chir.*, May 2.

A Great Benefactor, Mr. Ledger.—The *Independent* has the following brief personal note regarding the declining years of a true benefactor of his race: "One of the great, but not much talked about benefactors of mankind, is still living and in excellent health at Kenmore, Mr. Ledger, who about forty years ago after many trials and hardships, introduced that variety of cinchona calisaya known as Ledgerana, into the island of Java, when it began to be feared that the careless and destructive methods of gathering it by the natives of its South American home would wholly deprive the world of it. But this variety is very rich in quinin, and the great London firm that handles the main part of the product are afraid the world will not need all that now is produced. It is estimated that the quantity of bark now produced every year is fully ten millions of pounds."

"Taking Poison."—The supreme court of Illinois handed down two decisions March 28, 1896, in which it holds that the term "taking poison," as used in a policy of life insurance, means the voluntary taking of poison, or an intelligent and conscious act. In the first case, Travelers' Insurance Co. v. Dunlap, the death of the insured was caused by his mistaking a bottle of carbolic acid for peppermint. In the second case, Metropolitan Accident Association v. Froiland, death resulted from chloral being taken by mistake for distilled water. Here the policy provided, "I agree that this insurance shall not be held to extend . . . to poison in "any way taken, administered, absorbed, or inhaled." The words, "in any way," the court holds relate to the mode or manner in which the poison is taken, and not to the motive of the insured in taking it. In both cases the supreme court affirms judgments, rendered for the respective plaintiffs, against the insurance companies.

Antitoxic Property of the Blood of Animals.—Phisalix announces that animals considered refractory to poisons (adders, vipers, frogs) succumb to large toxic doses, while on the other hand, animals considered susceptible resist small doses. It is therefore merely a question of degree. In the same way, the blood or serum of refractory animals is antitoxic, and can neutralize a large quantity of poison. Inversely the blood or serum of ordinary animals is not sensibly toxic, and yet ten to fifteen centimeters of the blood of a guinea pig added to a fatal dose of poison will retard its action. There exists, therefore, in the blood a small amount of some antitoxic substance, and conse-

quently the refractory condition of certain animals is merely an exaggeration of the normal condition.—*Bulletin Médical*, April 22.

Test for Albumin in Urine.—Dr. Adolf Jolles, of Vienna, according to the *Medical Press and Circular*, has brought forward a new test containing mercury, succinic acid and the hypochlorite of soda. He maintains that a good test for albumin should be free from color and sensitive in reaction, and thought the following fulfilled these requirements:

R	Hydrarg. bichlorid.	ʒ ijss	10
	Acid. succinici	ʒ v	20
	Sodii hypochlorit.	ʒ ijss	10
	Aquæ distillat.	ʒ xv	450

After filtering 4 or 5 c.cm. of the urine to be tested, 1 c.cm. of 30 per cent. acetic solution is added, with 4 c.cm. of the above reagent. The whole is well shaken and set aside to settle. In a second test tube, 4 or 5 c.cm. of the urine after filtration is treated with 1 c.cm. of the acetic acid as above and then set aside to settle in order to estimate the amount of mucin present. This eliminates any error from the absolute albumin present. The potassium ferrocyanid test is defective in this respect. The reaction is very sensitive and can detect 1 of albumin in 120,000 parts of urine. The reagent is free from color throughout, which is another advantage over the potassium ferrocyanid test. It is also superior to Spiegler's in defining accurately the amount present in the absence of chlorids.

A Missionary Hospital at Old Cairo.—The Church of England has through its veteran, Dr. Harpur, for several years conducted a little hospital of ten beds and a considerable dispensary work in the guardhouse of an old palace. Here from early morning often till late in the afternoon two doctors, English and Syrian, with their native assistants, are engaged in attending the sick and suffering. Since 1892 there has been a daily attendance of over 100, and during the past two years, of which a careful record has been kept, 10,849 persons have been treated, while 1,007 operations have been performed. The patients come from all parts of the country, even from as far as Suez, Assouan, Kafr-Zayat, Tantah and Zagazig, although, the largest number are from Old Cairo and the neighborhood. In 1894, 421 districts and villages were represented by the patients. In consequence of the large number of women attending the dispensary, the committee are sending out a lady doctor this year in addition to the present staff. The work is carried on under great difficulties, for the hospital is both inadequate and insanitary, and the whole accommodation of the mission is costly and uncertain. The committee of the C. M. S. have given a grant for the purchase of a site and for building houses for the doctors and lady workers, but a further sum of at least £13,000 is needed for building the hospital and dispensary.

To Control Sale of Antitoxin in Connecticut.—A law was passed in Connecticut in 1895 that no person shall sell, offer, expose for sale, or shall receive or solicit any order for the sale or delivery, within that State, of any article known as diphtheria antitoxin, or any article prepared from the blood serum of any animal, and intended to be used for a medicine, unless the receptacle containing such preparation bears a label on which is placed the name and address of the producer, and upon such label, or upon a circular accompanying such receptacle, and inclosed with it in a sealed package, shall be printed or written the date of production and the value of the contents in antitoxin as measured by some generally recognized standard. Any person violating these provisions shall be fined not more than $500, or imprisoned more than one year, or both. The State board of health may, from time to time, at its discretion, procure from any dealer in antitoxin or other blood serum medicine samples of such articles and cause the same to be tested, and if by such test it shall be found that the article tested is not such as it is represented to be on the package, but of inferior quality, then the seller of such inferior article shall be punished as above. It shall be the duty of the county health officer in each county to prosecute violators of the provisions of this law.

Liability for Negligence in Making Examination.—The law does not exact from physicians and surgeons the utmost degree of care or the highest attainable skill in the practice of their profession, although they, by virtue of their relation toward patients, impliedly engage that they possess ordinary knowledge and skill, and that they will in the course of their employment exercise such proper care and attention as may be reasonably expected from members of their profession. Such is the statement of law made by the supreme court of Nebraska in connection with its decision of April 7, 1896, in the case of Griswold v. Hutchinson. This was an action brought against two physicians. The plaintiff alleged that he had employed them to treat his wife for what they pronounced an ovarian tumor, and that when they performed an operation therefor they found her only ailment was a fibroid tumor of the uterus, which fact they concealed from him. The court says that it was clearly established by the record that they were mistaken respecting its being an ovarian tumor. Some of the evidence in the case suggested that as careful an examination was not made as should have been for the purpose of determining on an operation. Indeed, the court says, on this point, that the testimony of the medical witnesses tended directly to prove the wrong alleged, viz., negligence in the examination, and the consequent unfortunate result thereof. On the trial, in the district court, judgment was entered in favor of the defendants on a verdict rendered in accordance with the peremptory instruction of the judge. The supreme court hold that this was error as to one of the defendants and reverses the judgment as to him. But as to the other defendant, Dr. Hutchinson, the court holds that the judgment in his favor was correct. When first consulted, he advised the plaintiff to consult some physician who was a specialist in that line, and his attitude toward the case after surrendering the patient to the other defendant was that of a friend and counselor only, and in no sense that of a physician or surgeon. On this ground the court exonerates him.

Practical Notes.

Favorable Influence of Strychnin in Chloroform Intoxication.—Evenchow states in *Wratsch*, No. 1, that in his experiments on dogs, he found that strychnin retards unmistakably the heart failure in collapse from chloroform, by its stimulating effect on the vasomotor center, which raises the lowered blood pressure.

First Trial at Kiew of Serum Therapy for Syphilis.—Wreden describes in the *Bolnitschnaja Gaseta Botkina*, No. 52, his experience with five young soldiers in the tertiary stage of syphilis, to whom he administered subcutaneous injections of mercurialized serum (10 c.cm.) It worked favorably from the first injection, diminished the pains and healed rapidly the ulcerations.

Alum Bougies.—Soak 5 parts gelatin in 35 parts water for 15 minutes, then add 10 parts glycerin and heat the mixture till it has evaporated to 40 parts. It must not boil, but can be kept at an even temperature by arranging the vessel at some distance above the heat. Add to this a warm solution of 8 parts alum in 25 parts water, and heat until the mass becomes liquid again, and evaporate to 64 parts when it is ready to pour out. These bougies contain 12.5 per cent. alum.—*Bulletin de la Société de Pharm. de Bordeaux*, March.

Refuge for Pregnant Women and Mother's Milk Society.—These are two noteworthy benevolent institutions of Paris. In the former, women are received and physically cared for, while their work in a sewing-room attached, enables them to earn quite a little sum of money, which is given them when they leave. The children born average far higher physically than

usual. The other society supervises and assists mothers who have nursing children at their homes.

Retention of Dead Fetus. Labor Induced by Salicylate of Soda.—The fetus died at the fifth month and three months later the patient entered the hospital to be mechanically delivered. Nothing was done but to administer daily 6 grams of salicylate of soda for five days, when labor was induced and a natural delivery ensued. Vinay adds that medication alone is ineffective in inducing labor, unless the uterine contractions have already commenced, or unless some pathologic cause like the dead fetus, has produced a readiness in the uterus to respond. —*Gazette Médical de Liège*, April 30.

Straw Charcoal Recommended for Navel Bandages.—Wainstein describes in the *Shurnal bolesnej*, No. 10, a series of tests he has been making to determine the best material for navel bandages. The ideals of absolute cleanliness, rapid drying and healing are best secured by refraining from bathing, and by using the most absorbent bandage. This he asserts is straw charcoal (98 per cent.), after which come potassium permanganate and dry cotton. He also tried plaster of Paris, tannin, alum, glycerin and charcoal, and writes from an extensive experience, his views embracing the latest discoveries in regard to the superiority of hygroscopic bandages.—*St. Peters. Med. Woch.*, April 25.

Rectal Gonorrhea in Women.—Baer states that he has found this complication in 67 out of 191 cases of gonorrhea in women. He treats it with copious irrigation, using a 3 per cent. solution of boric acid, and to destroy the gonococci, a $\frac{1}{5}$ per 1,000 solution of argentamin. The erosions he paints with a 2 per cent. solution of argentamin. He has also found ichthyol effective.—*Deutch. med. Wochenschrift*, February 20.

Tussol in Whooping Cough.—An epidemic of whooping cough gave a German physician the opportunity to test the virtue of tussol, which he found quite beneficial, in many cases restricting the duration of the disease to a couple of weeks. This JOURNAL, page 696, mentions another new remedy for whooping cough, chlorhydrate of phenocol. The practice of sending the little patient away from home is quite common, but it is strongly to be deprecated, as it often produces an epidemic in the place to which he is sent.—*Therapeutische Wochenschrift*, March 15.

Treatment of Wounds by Formalin.—Schleich announced at the Balneologic Society that he has discovered a new way of causing wounds to heal that renders the greatest triumph of modern surgery, antisepsis, entirely superfluous. With it there is no need for any carbolic or sublimate solution or iodoform gauze. The process consists in sprinkling pulverized gelatinized formalin in the wound, which produces some chemic change in the organism. The living cells take up the formalin, and it acts upon them in some way that has an accelerating effect upon the healing processes of the wound. Pus formations cease more rapidly than by any other method, while fever and inflammation subside immediately. He exhibited some patients operated upon a day or so previously, for various serious troubles, whose wounds had healed to a wonderful extent.—*Therapeutische Wochenschrift*, March 15.

Ether versus Chloroform.—Eisendraht has been studying the effect on 130 patients of the administration of these two anesthetics, testing the urine before and after, etc. He finds that preëxisting albuminuria is more frequently increased by the administration of ether than of chloroform. In healthy persons albuminuria is found in 25 per cent. of the cases after ether and in 32 per cent. of the cases after chloroform. Cylindruria follows the use of either in the same number of cases, 32 in all out of 130.—*Deutsch. Zeitsch. f. Chir.* in *Union Méd.* March 7.

Official Reports of the Antitoxin Treatment in Germany.—Replies were received from 1,349 physicians to the circular sent out by the German government to collect statistics in regard to the treatment of diphtheria with antitoxin. The mortality in the 6,626 total cases treated, was 12.9 per cent. as a whole, and 19.5 per cent. in the hospital cases. There were sixty cases reported where the effect had been injurious, producing eruptions, albuminuria, pains in the articulations, cardiac troubles and nephritis, with three cases of general weakness. Forty-two of these recovered, and eighteen died. In 55.6 per cent. of the cases commented upon by the physicians, out of a total of 4,871, the beneficial effects of the serum were unmistakable. In 30.8 per cent. they were considered doubtful, and in 13.6 they were considered *nil*.

Non-Syphilitic Orbital Tumor Cured by Potassium Iodid.—Martin describes the case of a woman of 57, who applied to him for relief from pain in the orbit, more intense at night than during the day, with pronounced exophthalmus. The ophthalmoscope showed a venous stasis due to the compression of the optic nerve by a tumor. This pathologic condition had commenced eight months previously, after an attack of pleurisy. He supposed that it was a sarcoma, and as a waiting measure, he administered potassium iodid, one gram a day, intending to make an exploratory puncture and advise an operation later. But in one month there was marked improvement, and in two complete recovery. He adds that in similar cases this depuratory treatment should be followed, even when surgical intervention is necessary to prevent relapses, and states that not only potassium iodid is indicated, but possibly mercury, arsenic and various toxins, with whose properties we shall soon be better acquainted.—*Revue Gén. d'Ophthalmologie*, April 30.

Harrisburg.

THE PENNSYLVANIA STATE MEDICAL COUNCIL has rescinded its rules accepting licences from the New York Board of Medical Examiners. Physicians and surgeons who come into Pennsylvania hereafter from New York will be required to pass an examination before the State medical examining boards before they can practice, the same as those from other States and graduates fresh from medical and surgical colleges. The New York examiners have refused to accept the licenses issued by the Pennsylvania Council on the ground that the examinations in the State of Pennsylvania, are not up to the standard. A meeting of the council was held at which this retaliatory action was taken. The questions for the semi-annual examinations to be held June 16-20, were also prepared. The State Medical Board will conduct the examination in the senate chamber and house of representatives.

A HANDSOME PORTRAIT of the late Dr. T. J. Dunott, the Pennsylvania Railroad Surgeon and one of Harrisburg's best known physicians, who died in 1893, has been presented to the Harrisburg Academy of Medicine by Dr. J. F. Culp, of Steelton, Pa.

DR. HUGH HAMILTON of this city has been appointed secretary of the section on midwifery, diseases of women and abdominal operations in the second Pan-American Medical Congress.

Washington.

WEEKLY REPORT OF THE HEALTH DEPARTMENT.—The report of the Health Officers for the week ending May 16 shows: Number of deaths (stillbirths not included), 99; death rate per 1,000 per annum, 18.7; death rate per 1,000 per annum corresponding week last year, 17.1.

MEDICAL ASSOCIATION OF THE DISTRICT OF COLUMBIA.—The total membership of this Association is 358, not including 16 associate members.

MICROSCOPICAL SOCIETY.—At the twelfth annual reception, held on the 12th inst., seventy-five microscopes were in use, each exhibiting some interesting specimen, histologic or pathologic.

MEDICAL SOCIETY.—At the meeting held on the 13th instant Dr. Kerr read a paper on "Fractures of the Hip in the Aged,"

and Dr. V. A. Moore one entitled "Observations on the Number and Nature of the Bacteria Normally Found Present in Milk." At the meeting held on the 20th instant, Dr. S. S. Adams read a paper on "The Use of the Antitoxin of Diphtheria in Private Practice in the District of Columbia;" Dr. Moore one on "Tuberculosis in Pigs," and presented some specimens showing the disease. The Society held a special meeting on the 18th instant to take suitable action on the death of one of its oldest and most respected members, Dr. Walter C. Briscoe, who died on the 16th instant at a sanitarium in Hopeworth, R. I.

District Hospital Reports.—The report of the Commissioner of Charities for the three months ended March 1, shows work done by the following hospitals:

The Central Dispensary and Emergency Hospital had 585 emergency cases, 89 ambulance calls and 10 autopsies; Columbia Hospital for Women had 499 medical and surgical cases treated, 87 operations performed and 1,335 prescriptions compounded; the Children's Hospital showed a total of 922 medical and surgical cases treated and 1,051 prescriptions compounded; National Homeopathic Hospital had 71 operations performed, 508 medical and surgical cases treated and 1,899 prescriptions compounded; in Freedman's Hospital there were 1,819 medical and surgical cases, and 1,340 prescriptions were compounded; the Women's Dispensary provided for 941 patients during the quarter; in the hospital of the Washington Asylum there were 171 patients received. Eight births occurred and 40 deaths.

Washington Obstetrical and Gynecological Society.—At the 247th meeting of the Society, held on the 15th instant, Dr. M. F. Cuthbert read a paper on the "General Management of Cases during Pregnancy and Confinement." Dr. Fry presented a uterus removed by abdominal section.

Georgetown Medical School Commencement was held on the 14th instant with eleven graduates.

Certificates of Health.—Senator Sherman has introduced a bill requiring all immigrants to the United States to exhibit upon landing in this country a certificate of health, signed by a medical officer of the Marine-Hospital Service, and providing that any immigrant who does not carry such a certificate shall be sent back to the port from which he came.

To Prevent Contagious Diseases.—Mr. Babcock has introduced in the House the bill of the Commissioners to prevent the spread of contagious diseases.

Against the Vivisection Bill.—Senator Gallinger presented a series of resolutions adopted by the American Medical Association, protesting against the passage of the bill regulating vivisection. Senator Proctor presented a memorial from Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and also a resolution adopted by the Pennsylvania Medical Society protesting against the bill, and there was also laid before the Senate a memorial from the Washington Chemical Society protesting against the passage of the bill.

Dr. Carmichael, of this city, who was operated upon at St. Luke's Hospital, New York city, on the 18th instant, for the relief of appendicitis, is improving rapidly.

Cincinnati.

Cincinnati Hospital.—The annual report of the Cincinnati hospital will be presented to the trustees next week, and will show an increase in work and usefulness. There is an effort being made to appoint an ex-boiler inspector superintendent of the hospital in place of Dr. F. M. Hendley. To those who will examine into the accounts, and the present condition of the institution in an unprejudiced manner it will be apparent that this would be a most deplorable move, for the staff would suffer the loss of several of its members who would resign in consequence, and surely the substituting of an inexperienced layman for a medical man of Dr. Hendley's experience and administrative ability would prove very detrimental to the hospital.

An unusual case has appeared at Chillicothe under the care of Dr. S. Gorslene. A young man was bitten by a dog and in a few days began to manifest a most remarkable chain of symptoms. His skin resembled a week-old corpse, with general anasarca, marked dysphasia from laryngeal edema, articular inflammation, dyspnea and insomnia. He ranges from extreme violence to semi-consciousness. Other dogs who were bitten by this infected animal manifested the same symptoms as this case and they died in a few days in awful agony.

Health Officer Dr. J. W. Prendergast has made several important recommendations in his annual report, among which are: The examination of cattle for tuberculosis by the injection of tuberculin; the establishment of an isolation hospital to consist of a number of small cottages located in the country, for the care of all city cases of diphtheria, measles, scarlet fever, etc.; and the erection of a disinfection station to be centrally located and where infected or suspected clothing, beds and furniture can be thoroughly sterilized by the most approved scientific methods at the expense of the city; dry air will probably be used.

The Woman's Medical Society of Ohio and Kentucky was organized at a meeting held at the office of Dr. Ellen McCarthy, in the San Marco Building, May 22. The following officers were elected: President, Dr. Amelia J. Pryor, Cincinnati; Vice-President, Dr. Catherine Roebuck, Newport, Ky.; Secretary, Dr. Jessie Dillon, Cincinnati; Treasurer, Dr. Eliza Dickey, Cincinnati. The membership is limited to regular practitioners and the objects of the society are to encourage freer discussions of medical topics than are indulged in by the gentler sex at the Cincinnati Academy of Medicine, and to promote closer social relations between the members. The meetings are to be held bi-weekly.

The Board of Medical Examiners of the police department is wrestling with a knotty problem. Some months ago it ordered a number of policemen to exercise daily in the gymnasium in order to reduce their weight, and they have faithfully obeyed their orders, but in doing so a number have increased rather than diminished in weight, and now the question arises what influence will this have on the board when they pass on the fitness of the men for service?

The Laura Memorial College and Presbyterian Hospital held their annual meeting last Friday. The report of the medical department showed that 197 patients were treated in the hospital during the year. The receipts of the hospital from patients were $3,303.98, making an average of $32.06 from each patient. The expenses were $6,317.29. A plea was made for free scholarships and better laboratory facilities.

Robert Carothers has been appointed as one of the professors of surgery of the Laura Memorial College.

The State Board of Medical Examiners met at Columbus May 18 and discussed at length three important topics: The qualification of medical colleges; the licensing of opticians; and what constitutes the practice of medicine, this latter being left entirely to this Board to determine.

Dr. W. H. DeWitt has been elected Medical Director of Christ's Hospital and Deaconess Home, to fill the vacancy caused by the death of Dr. C. G. Comegys.

The Mortality Report for the week ended Friday, May 22, 1896, shows: Deaths from all causes 104; annual rate per 1,000, 15.42.

Detroit.

Medical and Library Association.—At the last regular meeting of this association, Monday, May 18, Dr. Guy L. Keifer read a paper on "The Antitoxin Treatment of Diphtheria," giving a general and brief report of cases which he had had under his personal observation. He verified the fact of its efficiency in prophylaxis, immunization and in treating after the disease is established, by the splendid results he had in his cases, and showed that it is not absolutely necessary to

have the treatment applied early, as in at least five of his cases the treatment was not applied until after the third day, when the disease had become well established. The Doctor cited a number of cases in which he had marked success, and in which he met with no deleterious effects with the exception of a slight localized pain at the seat of injection, and an eruption (urticaria) which appeared in some of his cases, from five to fourteen days after the injection, but disappeared rapidly. In order to give the serum treatment a thorough test he discarded all other treatment except the local application of a mild bichlorid solution, and such stimulants as he considered necessary. In all cases a milk diet was rigidly carried out. The mortality in the Doctor's cases which were not selected but treated in all stages of the disease, was one in fifteen or 6.66 per cent. In all the cases the temperature was reduced from one to three degrees within twelve hours after the use of the serum. In concluding his paper the Doctor said that in the future he for one would not feel justified in using anything but the antitoxin treatment, when he was convinced that he had a case of true Kleb's Loeffler diphtheria to manage.

THE WAYNE COUNTY MEDICAL SOCIETY, at its regular meeting, Thursday, May 21, listened to a very interesting paper by Dr. A. E. Carrier entitled, "Local Applications to the Skin." In the paper the Doctor pointed out the fact that pathologic lesions of the skin were identical in kind with those which occurred in other tissues of the body. The difference in symptoms being accounted for by a difference in structure of the organ in which the lesion occurs. Local therapy of the skin has two subjects in view, the relief of distressing symptoms, and the cure of the disease itself. He spoke of the great use that can be made of water. Tepid water macerates the epidermis. To prevent the parts from becoming sodden, we use salt, soda, or borax to increase the specific gravity of the solution, making it greater than that of the blood serum, and so preventing endosmosis. Water medicated with astringents, finds many opportunities for usefulness in parasitic affections, the water itself being of some use. On the other hand it is to be remembered that experience teaches us that many cases of eczema which will not yield to aqua solutions of certain preparations will readily yield the same preparations when used as ointments or powders. Soap finds a very valuable place in the treatment of skin disease. For simple cleansing, a neutral soap that has a slight excess of fat is the best. Soaps having an excess of alkali are very irritating and are to be used where we desire a stimulating effect. When used for this purpose the soap should be thoroughly rubbed into the part and then spread over it, and kept in place by a bandage for several hours. Soap may be the cause of many skin diseases. Ointments form a very valuable means of applying medicine, but they are something more than mere mixtures of fat and medicament. The coal tar products which form the basis of most salves are in themselves to some skins, irritants; but they have the valuable property of seldom becoming rancid. Decomposing salves or ointments work great harm. The consistency of the ointment is of great importance. It should be soft when we use it upon the scalp and should contain something to make it harder when we wish to get the prolonged action of the remedy. The ointment should not be used on surfaces containing an exudate as the effect of the drug is governed by the exudate. Powders are very serviceable preparations. Great care should be observed in preparing them, as from the mixture of the same, remedies of very different nature can be compounded. Powders are useful as protectives and absorbents.

HEALTH OFFICE REPORT for week ending May 23. Deaths under 5 years 25, total 70. Births, male 48, female 51, total 99. Contagious diseases: Diphtheria, last report 16, new cases 4, recovered 6, died 1, now sick 13; scarlet fever, last report 28, new cases 6, recovered 12, died 3, now sick 19; smallpox, none; measles, last report none, new cases 7.

Philadelphia.

UNIVERSITY OF PENNSYLVANIA.—Thomas McKean, Esq., Class of 1862, recently subscribed $100,000 to the general fund of the University conditioned upon the raising of $1,000,000 within a specified time. Provost Harrison has undertaken the task of completing the amount. Mr. Alfred C. Harrison has subscribed $100,000 and J. William White, M.D., has promised to raise $20,000. The annual commencement week is in June, and the examinations are now in progress.

JEFFERSON MEDICAL COLLEGE.—The 75th annual commencement was held at the Academy of Music. The address to the graduates was delivered by Prof. Theophilus Parvin, M.D., LL.D. The class numbered 227.

MEDICO-CHIRURGICAL COLLEGE.—The annual commencement of the college was held at the Academy of Music May 13, 1896, Dr. L. Webster FOX, Professor of Ophthalmology being the valedictorian. The number of graduates receiving the degree of M.D. was 54, in addition to which six took special courses.

THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS at its meeting on the 21st inst. had a varied and interesting series of papers. Dr. Robert H. Hamill presented a specimen and read the report on a "Case of Cæsarean Section for Fibro-cystic Tumor Complicating Pregnancy, with Recovery of the Patient." By invitation of the Executive Committee, Dr. James F. Prendergast read a paper on "The Bicycle for Women." He considered that the advantages of this form of exercise when properly conducted, very greatly outweigh its objections and dangers. He stipulated, in the first place, that the person wishing to ride the bicycle should be taught a good method, so that the whole body should be exercised and not merely the lower extremities. Then a well adjusted saddle is of great importance, for women especially, and he praised the newer forms without any peak in front. Finally, the rider should not be permitted to indulge in the pastime to excess, at first, but should take up this form of exercise by degrees, so as not to cause undue amount of fatigue. With these precautions, he considers the bicycle a valuable adjunct to hygienic treatment and free from injury to the pelvic organs. Dr. Norris in discussing the paper, referred to a case of a patient suffering with lacerated perineum and relaxed muscles at the floor of the pelvis, who had refused operation and had become an enthusiastic rider of a wheel. A year later, he had again examined the patient and had found greatly increased tone and contractile force in the muscles of the pelvic floor, and such marked improvement that no operation was to be thought of. Dr. Longaker spoke of the height of the handles of some machines for ladies and condemned the very high handles equally with those which are too low. The handle-bar should be so adjusted as to allow the weight of the body to be distributed between three points, the pedals, the saddle, and the handles. In this manner of riding the exercise is extended to all the muscles of the trunk and limbs. Dr. Prendergast said that while a good saddle is not the only requirement it is a very important one, because very few women learn to support part of their weight upon the pedals in the act of riding on a bicycle. Dr. Richard C. Norris read the notes of "Three Cases of Tubercular Peritonitis" which had been subjected to operation. The difficulty of diagnosticating this condition from ovarian cystomas was dwelt upon, and it was declared to be in some cases impossible to make out the condition positively before the abdomen is opened. The first case was submitted to celiotomy with removal of ovaries and tubes; universal peritoneal tuberculosis was found. She died in eleven hours, probably from tubercular toxemia, in the opinion of the reporter, although the possibility of a cryptogenetic infection, as suggested by Osler, was admitted. The second case, a colored woman 4_ years of age, with symptoms of abdominal tumor and cachexia for a couple of years was subjected to laparotomy, removal of mass of tubercle and separation of adhesions between intestines, but the uterus and ovaries, being healthy, were not disturbed. Uninterrupted recovery followed. In the third case, a young colored girl, 17 years of age, a vaginal opening was made and tuberculous matter discharged; the symptoms having simulated a pelvic abscess. This patient also made a good recovery. The beneficial effects of operation upon peri-

toneal tuberculosis are observed in a very large percentage of the cases. The reason for this post-operative retrocession of the tubercular process in the peritoneum, and in the viscera of the abdomen was thought to be explained by the facts shown by experiments upon rabbits, that celiotomy is followed by increased resistance to infection and hyperemia, both of which are unfavorable to the further development of the tuberculosis. Dr. C. B. Penrose presented to the section a useful method of gauze drainage for the abdomen, which he had largely used during last winter, in at least thirty-five cases. He referred to the fact that the coils of intestine and the peritoneal surfaces adhere to the gauze and make it difficult to remove without the expenditure of an unjustifiable amount of force. His idea is to enclose the gauze drain in a thin rubber tubing made by cutting off the end of a rubber condom which is then slipped over the gauze and covers it where it comes in contact with the tissues, except at the extremity where the adhesions will be of little consequence. He had found it work very well in practice. Dr. B. C. Hirst, Chairman of the Section, read a paper on "Serum Therapy of Puerperal Septicemia." He had collected some thirty cases from current literature in which this method had been adopted. The serum employed was the anti-streptococcic toxin made in the Pasteur Laboratory in Paris by Marmorek, which he considered the best obtainable; he had no confidence in any form of anti-streptococcic serum made in this country which had been brought to his notice thus far. In the list of thirty cases, all of which had been treated by the Marmorek serum, there had been a mortality of 50 per cent., while the ordinary mortality of puerperal septicemia is only 25 per cent. Two patients, he declared, were evidently killed by the treatment, as their temperature record indicated that they would probably have recovered of their puerperal infection if the injections had not been given. Dr. Hirst further criticized the serum treatment by the anti-streptococcus serum by the statement that this at best was only claimed to be of use in streptococcus infection, but only 84 per cent. of clinical cases are of this character, the other 16 per cent. being distinctly something else, such as the staphylococcus pyocyaneus and ceruleus, pneumococcus, and so on. He had recently opened a large abscess after childbirth and had found it to contain only the pneumococcus. He therefore condemned the serum-therapy of puerperal septicemia as being not only inefficient but capable in itself of causing the death of patients who otherwise would recover. He believed that a more promising method of treatment was one which increased the number of white blood cells, causing a hyperleucocytosis, and referred to a recent paper in the *Centralblatt für Gynekologie*, in which seven cases had been treated by this new method with very successful results.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from May 16 to May 22, 1896.

Capt. Richard W. Johnson, Asst. Surgeon, granted leave of absence for thirty days, to take effect about May 14, 1896.

Lieut.-Col. William E. Waters, Deputy Surgeon-General, granted leave of absence for two months, to take effect on or about July 1, 1896.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending May 16, 1896.

Asst. Surgeon H. D. Wilson, ordered to examination preliminary to promotion.

Asst. Surgeon C. M. De Valin, detached from the Philadelphia Hospital and ordered to hospital at Chelsea.

Asst. Surgeon E. M. Shipp, detached from the U. S. R. S. "Vermont," and to the U. S. S. "Monongahela."

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U. S. Marine-Hospital Service, for the fifteen days ended May 15, 1896.

Surgeon R. D. Murray, to inspect quarantine ports on Gulf Coast of Florida west of and including Apalachicola and the coasts of Alabama and Mississippi, May 1, 1896.

Surgeon P. H. Bailhache, to inspect quarantine ports on the coasts of Connecticut, New York and New Jersey, as far south as Sandy Hook, May 1, 1896.

Surgeon George Purviance, to inspect quarantine ports on coast of New Jersey south of Sandy Hook and on Delaware bay and river, May 1, 1896.

Surgeon H. W. Sawtelle, to inspect quarantine ports on the coasts of Louisiana and Texas, May 1, 1896.

Surgeon H. W. Austin, to inspect quarantine ports from northern port of Maine, to entrance northern port of Rhode Island, May 1, 1896.

Surgeon George W. Stoner, to inspect local quarantine station at Baltimore, Md., May 1, 1896.

Surgeon John Godfrey, to inspect quarantine ports on the coast of California, May 1, 1896.

Surgeon H. R. Carter to inspect Cape Charles Quarantine Station, and quarantine stations at Newport News, Norfolk and Richmond, Va., and quarantine ports on the coasts of North and South Carolina, Georgia, Florida and the coast east of Apalachicola, excluding Key West, May 1, 1896.

P. A. Surgeon C. T. Peckham, to inspect quarantine ports on the coast of Washington exclusive of ports on the Columbia river, May 1, 1896. Granted leave of absence for thirty days on account of sickness, May 15, 1896.

P. A. Surgeon Eugene Wasdin, granted leave of absence for two days, from May 14 to 16, 1896.

P. A. Surgeon G. M. Guiteras, to inspect local quarantine station at Key West, Fla., May 1, 1896.

P. A. Surgeon J. C. Perry, to inspect quarantine ports on the coast of Oregon and the Columbia river, May 1, 1896.

Asst. Surgeon E. K. Sprague, to proceed from Mobile, Ala., to Boston, Mass., for duty, May 1, 1896. To defer departure for Boston, Mass., until return of Surgeon Murray, May 6, 1896.

Asst. Surgeon H. S. Cumming, to proceed to Norfolk, Va., for temporary duty, May 12, 1896.

Asst. Surgeon H. S. Mathewson, when relieved at Boston, Mass., to proceed to San Francisco, Cal., for duty, May 1, 1896.

Change of Address.

Ashmead, A. S., from Norristown, Pa., to 210 W. 4th Street, New York, N. Y.

Adams, S. S., from 1632 K Street, N. W., to 1 Du Pont Circle, Washington, D. C.

Brown, H. M., from Hillsboro, to 2362 South Elm Street, Walnut Hills, Cincinnati, Ohio.

Burr, Albert H., from 163 State Street to Room 1106 Reliance Building, Chicago, Ill.

Eaton, R. R., from Lowell to Ithica, Mich.

Egan, F. A., from 451 Faye Street to 510 Graceland Avenue, Chicago, Ill.

Grote, H. W., from Hyde Park Hotel to 40th Street and Cottage Grove Avenue, Chicago, Ill.

Gregory, J. H., from Chicago to Cave-in-Rock, Ill.

Harding, Geo. W., from Chicago, Ill. to Twelve Mile, Ind.

Hogan, D. D., from Chicago, Ill. to Arena, Wis.

Harrison, T. O., from Chantilly, Mo. to Kampsville, Ill.

Ketcham, L. Y., from 1535 2nd Street to 6th Street and University Avenue, San Diego, Cal.

Knight, F. C., from Libertyville to Waukegan, Ill.

Kinyoun, J. J., from 210 New Jersey Avenue to Marine Hospital, S. E., Washington, D. C.

Krusemark, Charles, from 125 to 94 E. 22d Street, Chicago, Ill.

McNary, H. F., from Princeton to care Central Insane Asylum, Lakeland, Ky.

Purtell, E. J., from 146 Huron Street to 157 Michigan Street, Milwaukee, Wis.

Robinson, L. A., from Chicago to Glenwood Springs, Colo.

Schram, A. W., from Chicago, Ill., to 200 24th St., Milwaukee, Wis.

Turck, F. B., from corner Clark and North Avenue to 555 Dearborn Avenue, Chicago.

Wood, E. S., from 628 Jackson Boulevard to 524 Michigan Avenue, Chicago.

Washburn, W. H., from 803 to 726 Grand Avenue, Milwaukee, Wis.

LETTERS RECEIVED.

Adams, W. A., Fort Worth, Tex.; Ashmead, A. S., New York, N. Y.; American Medical Review, New York, N. Y.; Atkinson, W. B., Philadelphia, Pa.; Alta Pharmacal Co., St. Louis, Mo.; Abraham, R., New York, N. Y.

Brandon Printing Company, Nashville, Tenn.; Bowers, J. E., Duluth, Minn.; Bulkley, L. Duncan, New York, N. Y.; Bandery, K., St. Louis, Mo.; Burton, H. B., Troy, N. Y.

Chlorid of Silver Dry Cell Battery Co., (2) Baltimore, Md.; Cambridge, P. M., Germantown, Ill.; Connorton, John W. Publishing Co., The, Chicago, Ill.; Carter, Howard, St. Louis, Mo.; Coopwood, B., Tilman, Tex.; City Book Bindery, Battle Creek, Mich.

Davis, N. S., Chicago, Ill.; Didama, H. D., Syracuse, N. Y.; Drevet Mfg. Co., The, New York, N. Y.; Douglas, Richard, Nashville, Tenn.

Epting, R. B., Greenwood, S. C.; Elliott, A. R., New York, N. Y.

Gibon, A. L., New York, N. Y.; Greider, C. S., Harrisburg, Pa.; Greening, R. D., Mansfield, La.; Gould, Geo. M., Philadelphia, Pa.

Hovland, B. M., Panama, Iowa; Hobley, Thos., Amherstburg, Ont.; Hall, Winfield S., Chicago, Ill.; Haldenstein, E. L., New York, N. Y.; Humiston, W. H., Cleveland, Ohio; Hay, Thos., Philadelphia, Pa.; Hussey, E. J. & Co., New York, N. Y.; Hot Appliances Co., The, New York, N. Y.; Harris, Seth, Union Springs, Ala.

Ingals, E. Fletcher, Chicago, Ill.

Jordan, R. M., St. Louis, Mo.; Jennings, J. Ellis, St. Louis, Mo.

Kemper, G. W. H., (2) Muncie, Ind.; Keniston, Chas. E., New York, N. Y.; Kendrick, Mann, New York, N. Y.

Lea Bros. & Co., (2) Philadelphia, Pa.; Loeb, H. W., (2) St. Louis, Mo.; Lord & Thomas, (2) Chicago, Ill; Le Baron, R., Pontiac, Mich.; Longfellow, R. C., Cincinnati, Ohio.

Mills, H., Philadelphia, Pa.; McIntire, Charles, Easton, Pa.; Maltine Mfg. Co., New York, N. Y.; Milnor, M. T., Warrensville, Pa.; Miller, Dewitt, Kansas City, Mo.; Marshall Printing Co., Marshalltown, Iowa; Meany, Wm. B., St. Louis, Mo.; Morse, Lyman D., Advertising Agency, New York, N. Y.; Mandeville, F. E., Schenectady, N. Y.

Northrup, Wm. P., New York, N. Y.; Nye, H., Enon Valley, Pa.; Nisbet, I. H., Nashville, Tenn.; Neslon, Wolfred, New York, N. Y.; Niles, S. R. Advertising Agency, Boston, Mass.

Ohls, Henry, (2) Chicago, Ill.

Parmele, Charles Roome, New York, N. Y.; Piper, R. J., Chicago, Ill.; Parkinson, James H., Sacramento, Cal.; Pascal, H. S., New York, N. Y.; Publishers' Collection Agency, St. Paul, Minn.; Pennington, H. V., London, Ky.

Quinn, J. A., St. Paul, Minn.

Randolph, R. L., Baltimore, Md.; Ragan, Thomas, Jackson, La.; Reed & Carnrick, New York, N. Y.; Riley, C. M., St. Louis, Mo.; Rogers, H. W., Cleveland, Ohio.; Rolfe, B. F., Stacyville, Iowa; Rodi, C. H., Calumet, Mich.

Shade & McConnell, Washington, D. C.; Shultz, R. C., Long Island City, N. Y.; Schadle, J. E., St. Paul, Minn.; Swartz, G., Providence, R. I.; Stanley, Elwood, Sandusky, Ohio; Scott, X. C., Cleveland, Ohio; Scott, J. W., Houston, Texas; Schneck, Jacob, Mt. Carmel, Ill.; Schering & Glatz, New York, N. Y.; Subscription News Co., Chicago, Ill.; Sharp, W. H., Parkersburg, W. Va.; Stewart, F. A., Wauwatosa, Wis.

Tagert, A. H., Chicago, Ill.; Tyree, J. S., Washington, D. C.; Thomas, J. D., Pittsburg, Pa.; Tilliers, F., Blue Earth City, Minn.

Warner, Wm. R. & Co., Philadelphia, Pa.; Whitney, George F., New York, N. Y.; Weidman, W. M., Reading, Pa.; Whilan, Charles, Birmingham, Ala.; Woodbridge, J. E., Cleveland, Ohio; Wandless, Henry W., Dallas, Texas; White Rock Mineral Spring Co., (2), Waukesha, Wis.; Woodbury, Frank, Philadelphia, Pa.; Woodruff, J. C., Charleston, S. C.